Commercial Vehicles in the Eastern Region

Road Safety Profile

Version 1.0

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Aim

This document is intended to provide insight into the nature and scale of trends in collisions involving commercial vehicles in the Eastern Region. Geographically this comprises the areas covered by Essex, Suffolk, Norfolk, Hertfordshire, Bedfordshire and Cambridgeshire Police Forces.

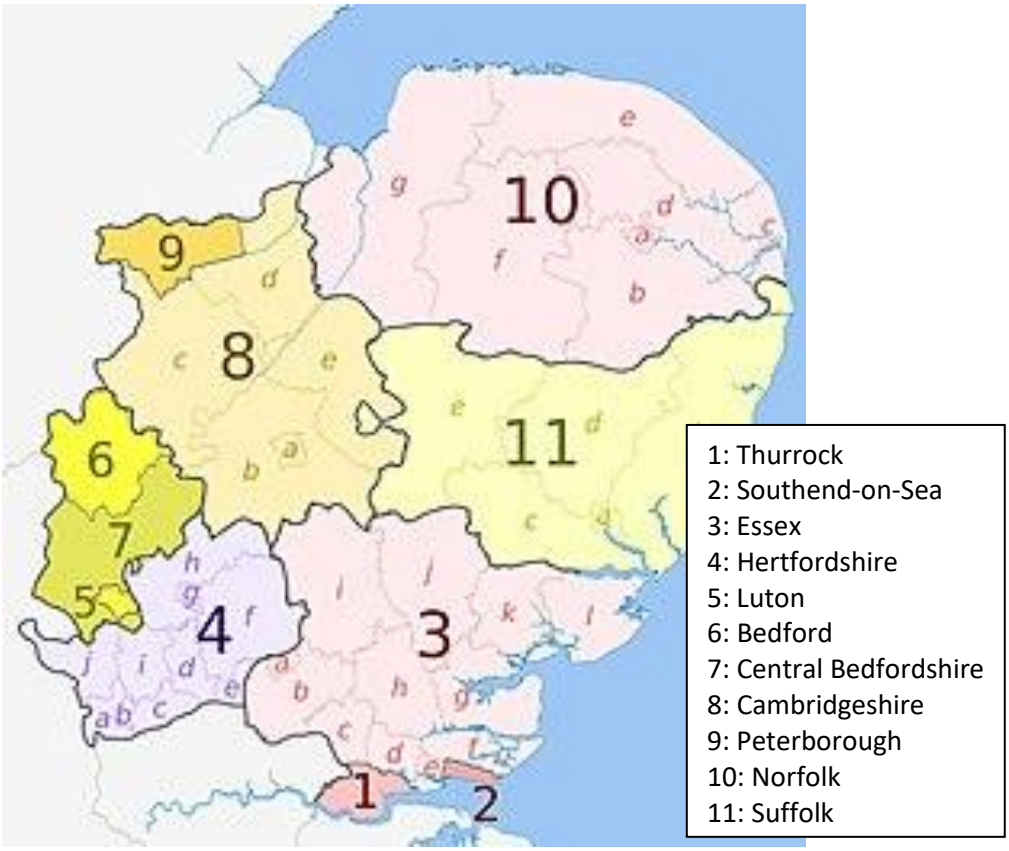


Figure 1: The Eastern Region Local Authorities at County and Unitary level[1]

This document relies principally on published STATS19 collision data for the most recent 5 year period available, this covers the calendar years 2015-2019. STATS19 data gives details of road traffic collisions on the public highway that were reported to Police and resulted in injury to a person. It excludes deaths on the road by natural causes and those ruled as suicide by Coroners, but includes any deliberate acts to harm others.

For the purposes of this document and unless otherwise stated, commercial vehicles will include the following vehicle types as defined in STATS19:

- Agricultural vehicles
- Buses, coaches and minibuses, excluding taxi-cabs
- Goods vehicles over 3.5t MGW and weight unknown
- Vans, excluding car derived vans

The purpose of this document is to inform further work to engage with commercial vehicle operators and identify opportunities for reducing the harm resulting from collisions involving commercial vehicles.

[1] Source: https://en.wikipedia.org/wiki/East_of_England

Executive Summary

1) Commercial vehicles were involved in almost 12,200 recorded collisions involving injury in the Eastern Region in the years 2015-2019.

2) Nearly 30% of all fatal collisions in the region involved a commercial vehicle, with HGVs in particular having a larger share of fatals than they do of less serious collisions.

3) Reductions in van and goods vehicle collisions have been less than the reduction in total collisions, so they made up a larger proportion of the total in 2019 than they did during 2012-2014.

4) Almost 50% of collisions were on urban roads and less than a quarter were on trunk roads, although 69% were on classified (M,A,B,C) roads.

5) Built up area collision hotspots with the highest concentrations of commercial vehicle collisions comprised Cambridge, Norwich, Luton, Bedford and Peterborough.

6) High volume routes with the largest numbers of collisions were the M1, the M25, the A282 Dartford River Crossing and its approach from M25 junction with the A13, the A14 north-west of Cambridge, the M11 south of Harlow and the A47 north of Peterborough.

7) There was little variation between areas in collision peak times. The peaks for collisions followed peak traffic flows on weekday mornings and afternoons, with lower total volumes spread more evenly though the daytime at weekends.

8) All areas saw a consistent driver age and gender profile, with the vast majority being males aged 25-55, tailing off gradually for people approaching retirement age. Driver licencing data indicates the age profile of those driving goods vehicles are skewed towards those in their 40s and 50s. If drivers under 40 are indeed less numerous on the road but equally represented in collisions, then this translates to a higher risk per driver mile for drivers under 40.

9) Built up area collision hotspots had the following characteristics:
- Larger proportion of pedestrian and cyclist casualties, particularly for cyclists in Cambridge.
- Larger proportion of collisions at junctions, especially in Bedford.
- Larger proportion of collisions involving buses and coaches.

10) High volume collision routes had the following characteristics:
- Larger proportion of car occupant casualties, and also of commercial vehicle casualties on the A47.
- Relatively few collisions at junctions but cluster close to junctions on dual carriageways.
- Larger proportion of collisions involving goods vehicles, and very few buses or coaches.

11) The most common KSI (Killed or Seriously Injured) collision types were those involving pedestrians and cyclists, head on collisions and nose-to-tail collisions. Single vehicle collisions and those involving four or more vehicles also accounted for a substantial proportion of KSI collisions.

12) Data quality and consistency issues prevent any worthwhile insight from being gained from offence data.

Agricultural vehicles

13) Agricultural vehicle collisions were characterised by the following:
- Head on and nose to tail collisions were the most frequent type.
- Geographically dispersed on rural roads.
- Low total number but high fatality rate.
- Drivers had relatively few risk taking type behaviours and a low rate of errant behaviour overall.
- Errors made were most frequently related to observation, distraction and manoeuvring.
- Drivers tended live fairly close to their collision location.
- Most live in high income rural areas (Mosaic type A) but may be among the more deprived individuals within these areas.

Buses and coaches

14) Bus and coach collisions were characterised by the following:

- Highest collision rate per mile travelled of all commercial vehicles, but this is mainly on urban roads where a high collision rate per mile is expected for all vehicles.
- High number of casualties per collision due to passenger numbers.
- Pedestrian, cyclist and nose to tail collisions were the most frequent collision types.
- The safety benefits of lower speeds on urban roads were offset by the physical vulnerability of pedestrians and cyclists in these areas, so did collisions did not have a low severity ratio.
- Drivers had relatively few risk taking type behaviours and a low rate of errant behaviour overall.
- Errors made were most frequently related to observation and manoeuvring.
- Drivers tended to live fairly locally to their collision.
- Almost all were working age males with the largest numbers aged in their 40s to mid 60s.
- Drivers tend to live in more deprived areas, though not at the very highest levels of deprivation. Some live in areas with people who are more comfortably off albeit without large disposable incomes (Mosaic types G, H and M).

Goods vehicles

15) Goods vehicle collisions were characterised by the following:

- Largest proportion of collisions on motorways, which have the lowest collision rate per vehicle mile. Despite this, they had a greater share of collisions than their share of total traffic.
- High fatality rate.
- Offside to nearside collisions on dualled roads were particularly common, with a key behaviour of poor observation when changing lanes.
- Nose to tail collisions were also fairly common with key behaviours of poor observation and close following.
- There were more drivers from outside of the region than any single county within it, however the majority (61%) of drivers did live in the region.
- Drivers were almost exclusively male and of working age, most frequently aged in their 40s or 50s.
- Drivers tend to live in areas ranging between moderate deprivation and comfortable income. They are a mix of homeowners and renters with few having a large disposable income, mostly living in villages and suburbs (Mosaic types G, H and M).

Vans

16) Van collisions were characterised by the following:

- Vans account for over 16% of all traffic. This is compared to just 6% for buses, coaches and goods vehicles combined. Van's share of traffic is set to increase with continued growth in online retail.
- Lower collision rate per mile than buses and goods vehicles, but sheer numbers mean more vans were involved in a collision than any other commercial vehicle type.
- Unlike buses and goods vehicles, vans have seen no clear reduction in risk per vehicle mile.
- Pedestrians and head on collisions were the most common type involving KSI casualties, with the most common type of all being the van driving into the rear of another vehicle.
- Van drivers had a relatively high frequency of errant behaviour in the most common collisions, with close following, distraction/poor observation and poor or illegal manoeuvres featuring most frequently.
- 80% of van drivers were resident within the Eastern Region.
- Drivers were almost exclusively male and of working age, with more drivers towards the younger end of the working age spectrum.
- Drivers tend to live in areas ranging between moderate deprivation and comfortable income. They are likely to be a mix of homeowners and renters with few having a large disposable income, and mostly living in villages and suburbs (Mosaic types G, H and M).

Recommendations

1) Focus for driver behaviour
    a. Target audience:
        i. Employers in the Eastern Region including all fleet operators and the growing grey fleet parcel delivery sector.
        ii. Van and goods vehicle drivers.
        iii. Male drivers aged 25-55 living in Mosaic type G, H & M areas (see Appendix 2 for communication preferences).
    b. Key messages for goods vehicle drivers:
        i. Responsibility to other road users, all of whom are particularly vulnerable around an HGV.
        ii. Observation while manoeuvring, especially when changing lane or merging.
        iii. Stopping distances and distraction/observation, highlighting nose to tail collision scenarios.
        iv. Work with other regions and/or DfT to mount a national campaign
    c. Key messages for van drivers
        i. Responsibility towards pedestrians.
        ii. Stopping distances and distraction/observation, highlighting nose to tail collision scenarios.
        iii. Observation and carelessness in manoeuvres and at junctions.
        iv. Allowing space and time, particularly on bends and narrower roads where head-on collisions are likely.

2) Focus for location based interventions:
    a. Explore ways to improve pedestrian and cyclist safety around large vehicles in urban areas.
    b. Enable and promote appropriate observation and manoeuvring technique for all traffic when leaving or joining a dual carriageway from a slip road.
    c. Explore policies to mitigate risks around forward visibility and narrowing roads in urban and rural areas to address head-on and nose-to-tail collisions.

3) Enforcement priorities:
    a. Close following
    b. Distraction
    c. Drivers hours/Tacho offences
    d. Excess speed and careless manoeuvres

Collisions Involving Commercial Vehicles

Severity

From 2015-2019 there were **12,197** collisions involving one or more commercial vehicles in the Eastern Region, resulting in **17,463** casualties. There were 26,381 vehicles involved in these collisions including non-commercials. Commercial vehicles involved comprised:

- 250 agricultural vehicles
- 1,141 buses/coaches
- 4,614 goods vehicles
- 6,417 vans

Recorded casualties in these collisions comprised:

- **306** people killed, accounting for 29.5% of all fatalities
- **2,024** people seriously injured, accounting for 16.4% of all serious injuries
- **9,296** people with slight injuries, accounting for 17.5% of all slight injuries

This data is broken down by commercial vehicle type in the chart below:

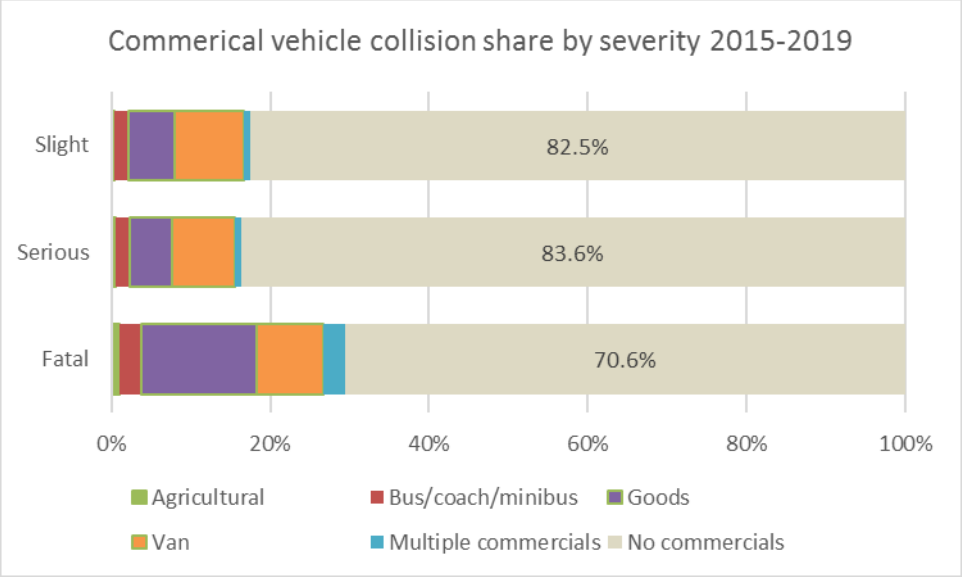


Figure 2: Commercial vehicle share of collisions by severity and vehicle type

This shows that commercial vehicles had a considerably higher share of fatalities than serious or slight collisions. This was largely a result of goods vehicles having a larger share of fatalities, but Bus+coach and multiple commercial vehicle collisions also had a greater share of fatalities than they did for collisions at other severities.

NOTE: *The CRASH collision recording system enabled an improvement in the accuracy of casualty severity records. This resulted in an increase in the proportion of casualties correctly recorded as serious. As CRASH was adopted during the 2015-2019 period, and by different Police Forces at different times, comparisons of Serious/KSI casualties between Police Forces and over time cannot be made without using a statistical adjustment to the recorded data.*

Key finding

Nearly 30% of fatal collisions in the region involved a commercial vehicle, with HGVs in particular having a larger share of fatals than they do of less serious collisions.

Trends over time

The following charts show how the number and proportion of collisions involving commercial vehicles changed during the 2015-2019 period covered by this document. These use indexed trends.

Indexed trends convert values for different variables to a percentage. This allows trends to be compared for variables whose absolute numbers are in different orders of magnitude or different scales. It is a measure of percentage change for each variable compared to that variable's own baseline average.

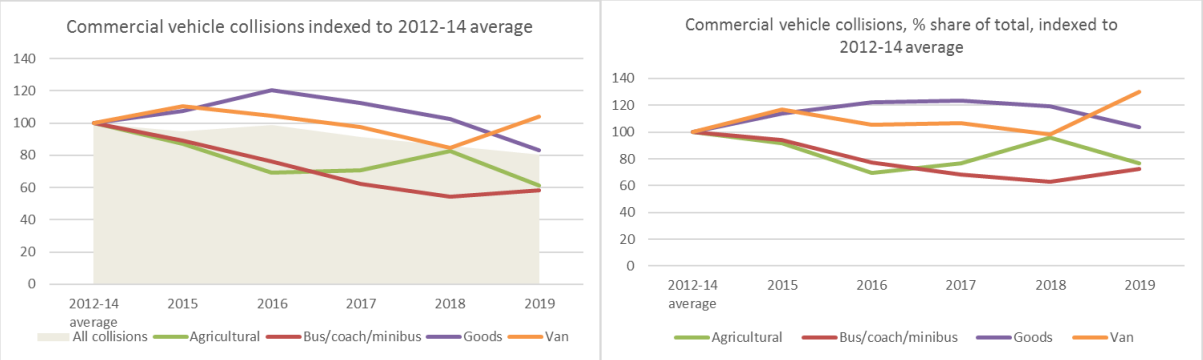


Figure 3: Commercial vehicles in collisions indexed trends, total number and share of all collisions 2015-2019

These charts show two subtly different things. The first chart shows reductions in the *numbers* of commercial vehicles involved in collisions since 2016, albeit with an increase for vans in 2019. This is against a backdrop of a reduction in all collisions. The second chart takes this overall reduction into account by measuring the percentage *share of the total* for each vehicle type.

The trends have broadly the same shape, but the reduction in total number was greater than the percentage share reduction because there was also a reduction in the number of collisions where commercial vehicles were not involved. As a result of this overall reduction, Goods vehicles and Vans had a larger share of collisions in 2019 than they did during the 2012-2014 baseline period.

Key finding

Reductions in van and goods vehicle collisions have been less than the reduction in total collisions so these vehicle types make up a greater proportion of total than they did in during 2012-2014.

Vehicle type comparisons

The table below summarises the severities of collisions involving the four commercial vehicle types.

	Agricultural	Bus/Coach	Goods	Van	All CVs
Fatal	12	21	165	108	306
Serious	55	222	671	1,076	2,024
Slight	180	879	3,418	4,819	9,296
Total casualties	340	1,933	5,989	8,744	17,006
Total collisions	247	1,122	4,254	6,003	11,626
% Fatal	5%	2%	4%	2%	2%
% KSI	20%	13%	14%	14%	14%
Casualties per collision	1.38	1.72	1.41	1.46	1.46

Figure 4: Severity involvement by CV type

The following chart compares the road types where each Commercial Vehicle group had their collisions:

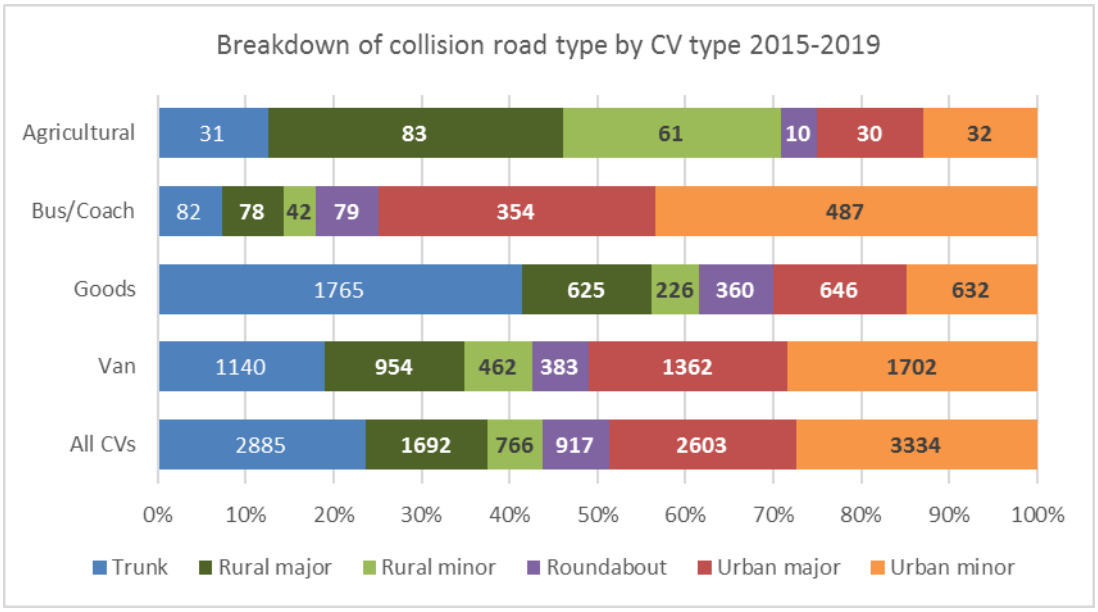


Figure 5: CV type by road type of collision[2]

Examining figures 4 & 5 in combination indicates the following:

- Agricultural vehicles have the highest fatality rate, this may result from a combination of their usage on rural roads and their large mass.

[2] Definitions:
Trunk – All M and A(M) roads, dualled A-roads & slip roads 50mph+ speed limit
Rural major – Non-dualled A-roads 50mph+ speed limit, B-roads 50mph+ speed limit
Rural minor – Any other roads 50mph+ speed limit
Roundabout – All roads where type = 'Roundabout'
Urban major – A-roads & B-roads <50mph speed limit, all dualled roads <50mph speed limit
Urban minor – All other roads <50mph speed limit

- The high fatality rate for HGVs may be a consequence of their size and kinetic energy as their collisions are predominantly on major rural and trunk roads with higher vehicle speeds.
- The slower urban roads for Bus+coach collisions may suppress their number of fatalities compared to HGVs, but this benefit from lower speeds may be offset for serious collisions by the need to share space with pedestrians and cyclists in urban settings.
- Bus+coach had considerably more casualties per collision than the other types, this is to be expected given their application as large passenger vehicles.
- Vans were involved in the greatest number of all collision severities but had a marginally lower fatality and KSI rate, possibly a consequence of the relatively small size compared to the other types.
- Overall, almost 50% of collisions were on urban roads and less than a quarter were on trunk roads.

Traffic count data allows us to determine the relative volumes of different vehicle types on the roads each year in the Eastern Region. The categories used do not translate directly to the STAST19 vehicle types, so it is only possible to make this comparison for Bus+coach *excluding minibuses*, Goods Vehicles, and Vans. Agricultural vehicles and minibuses are not identified separately in the count data.

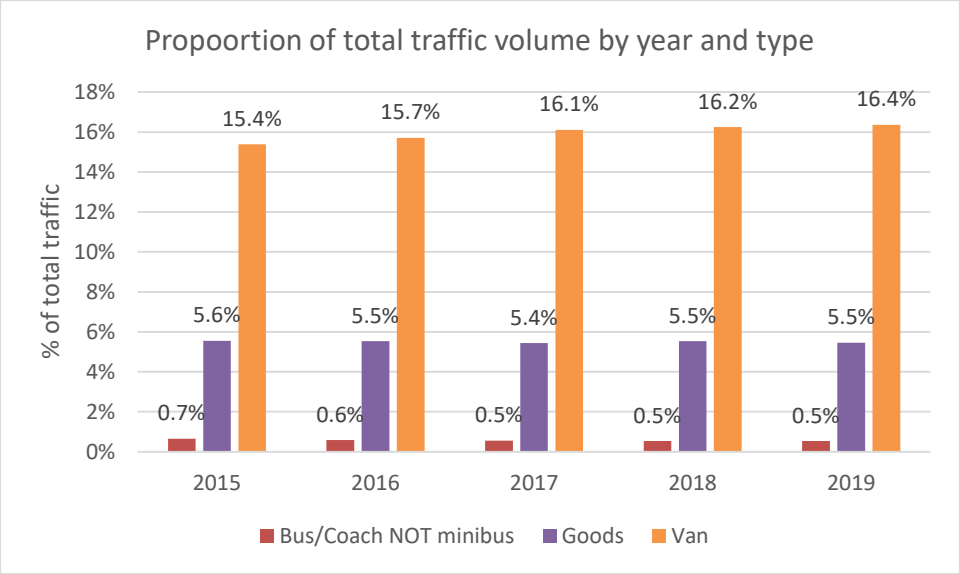


Figure 6: Proportion of total traffic volume by year and type

This shows no radical change in the proportion of traffic made up by vans, buses and goods vehicles over the 5 year period. It does show a small but consistent increase in the proportion of traffic made up by vans. This may be related to expansion in deliveries supporting online retail illustrated below.

Figure 7: Internet sales as a percentage of total retail sales

The percentage share of retail sales using the internet rose consistently each year from 12.5% in 2015 to 19.2% in 2019[3]. In 2020 this leapt up to 27.9%, no doubt influenced by the COVID-19 control measures. It may be considered likely that this market share will undergo a correction in 2021, however it is also likely that an increasing market share for online retail – and consequent use of delivery vans – will continue its upward trend thanks to the boost that the sector received in 2020.

Collision rates

The relative collision factor for each of these three vehicle types can be calculated by comparing the proportion of traffic each type accounts for, with the proportion of collisions they are involved in. A factor of more than 1 means the vehicle type is involved in a disproportionately large number of collisions compared to the proportion of traffic it accounts for. The factor for the three types of vehicle for which we have sufficient data are as follows:

- Bus+coach (excluding minibus) = 2.84
- Goods vehicles = 1.25
- Vans = 0.61

The mainly urban involvement of Bus+coach (*fig. 5*) may explain much of its disproportionately high involvement rate, as these roads have the highest collision rate per vehicle mile of any road type[4]. Goods vehicles are involved predominantly on trunk roads that have the lowest collision rate per vehicle mile of any road type. The fact that Vans have a higher involvement on urban roads (*fig. 5*) than HGVs but a lower factor overall, suggests that vehicle characteristics play a part in the differences seen in this data. Put simply, collisions with HGVs are harder to avoid and more likely to result in injury.

[3] Source: https://www.ons.gov.uk/businessindustryandtrade/retailindustry/timeseries/j4mc/drsi
[4] 584 injury collisions per billion vehicle miles on urban roads in 2019, compared to 59 per billion on motorways. Table RAS 10002 from https://www.gov.uk/government/statistical-data-sets/ras10-reported-road-accidents#accidents-by-type-of-accident

The data above is reflected in collisions-per-vehicle-mile data summarised in the following chart:

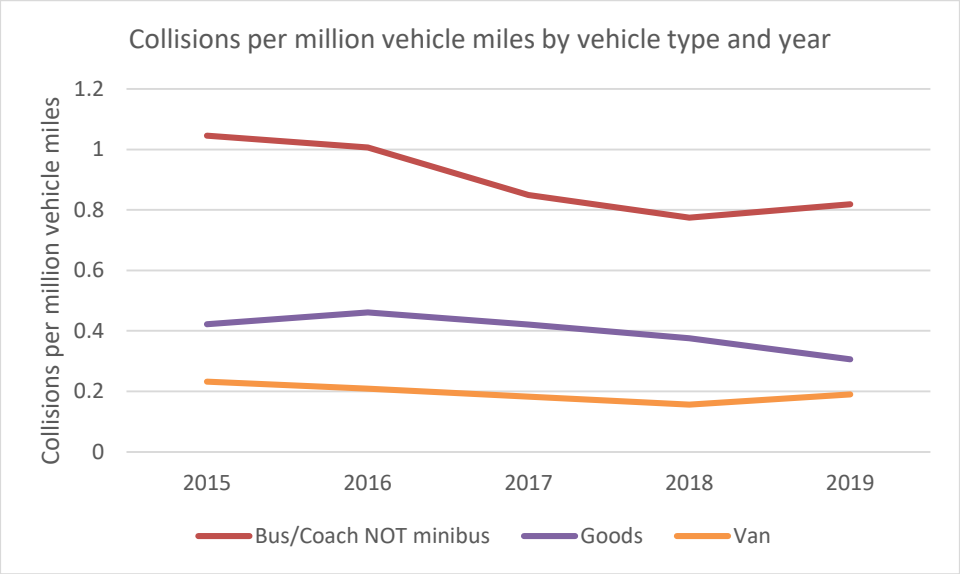


Figure 8: Collision per million vehicle miles by type and year

This shows the same trend in relative rate of collision involvement as the relative collision factor summarised on the previous page. In addition, it shows small reductions in risk over time for HGVs and Bus+coach. There was a very small reduction in risk for vans from 2015 to 2018 but this was reversed in 2019.

Key findings

Agricultural vehicle collisions were low in number but their large size and usage on rural roads meant their collisions were the ones most likely to be fatal.

Buses were involved in a disproportionately large number of collisions because of their usage on urban roads that have the highest collision rate per vehicle mile of any road type. The safety benefits of lower speeds on urban roads are offset by the physical vulnerability of pedestrians and cyclists in these areas. Carriage of passengers results in more casualties per collisions for buses than other vehicle types.

Motorways have the lowest collision rate per vehicle mile of any road type. Goods vehicles were the vehicle type with the largest proportion of their collisions on motorways. Despite this, goods vehicles were involved in a disproportionately large number of collisions over all, especially fatalities.

Vans are the most numerous commercial vehicle type, accounting for over 16% of all traffic, compared to just 6% for buses, coaches and goods vehicles combined. Consequently, vans are involved in more commercial vehicle collisions than any other type and their share of traffic is set to increase with continued growth in market share of online business within the retail sector. The collision rate per mile for vans is lower than for buses and goods vehicles, although unlike buses and goods vehicles there was no meaningful reduction in this risk per vehicle mile.

Key areas and routes

The figure below is a geographic heatmap of Commercial Vehicle collision locations.

Figure 9: Commercial Vehicle collision heatmap, Eastern Region 2015-2019

Heatmaps by their nature do not lend themselves to highlighting linear routes where collisions are dispersed along the length of a single road. Heatmaps are biased towards highlighting urban areas with higher quantities of traffic per unit area. Taking this into consideration, their usefulness lies in comparing urban areas with each other. This highlights the following areas as having particularly high concentrations of commercial vehicle collisions:

- Cambridge
- Norwich
- Luton
- Bedford
- Peterborough

Despite the limitations in using heatmaps on routes, this map does show the northern section of the M25 and southern section of the M1 have high concentrations of collisions. The M25 approach to the A282 Dartford River Crossing and its junction with the A13 also forms a hotspot.

NOTE: *Much of the border between Essex and the boroughs of East London are formed by the M25. Much of this falls within the Metropolitan Police area for collision recording purposes. Therefore this map does not include data for much of the eastern section of the M25.*

The chart below shows classified roads with a 1% or greater share of all commercial vehicle collisions in the region. This is not a measure of risk and is highly dependent on road length and traffic volume, but it does show the routes where collisions occur with the greatest frequency. This serves as something of a counterbalance to the urban bias of the heat mapping method of data visualisation.

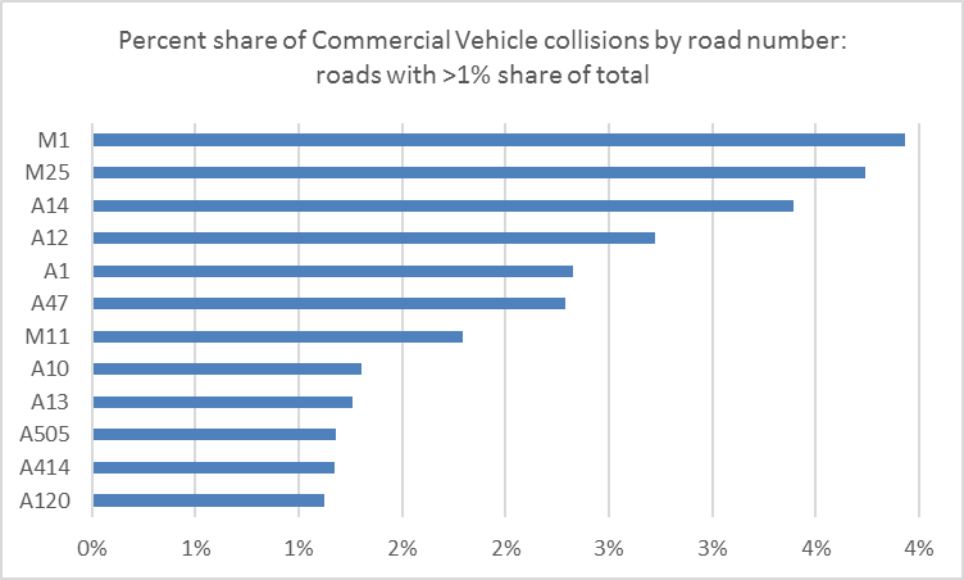


Figure 10: Percent share of Commercial Vehicle collisions by road number: roads with >1% share of total

These 12 roads account for 26% of all commercial vehicle collisions between them. There are a further 759 classified roads in the dataset that account for 43% of collisions between them, with the remaining 31% of collisions occurring on unclassified roads.

Figure 5 shows that almost 50% of collisions were on urban roads and less than a quarter were on trunk roads, so although 69% of collisions were on classified roads, a number of these were on classified roads in urban areas.

The following map provides a route analysis that highlights the relative frequency of commercial vehicle collisions on main inter-urban routes within the region.

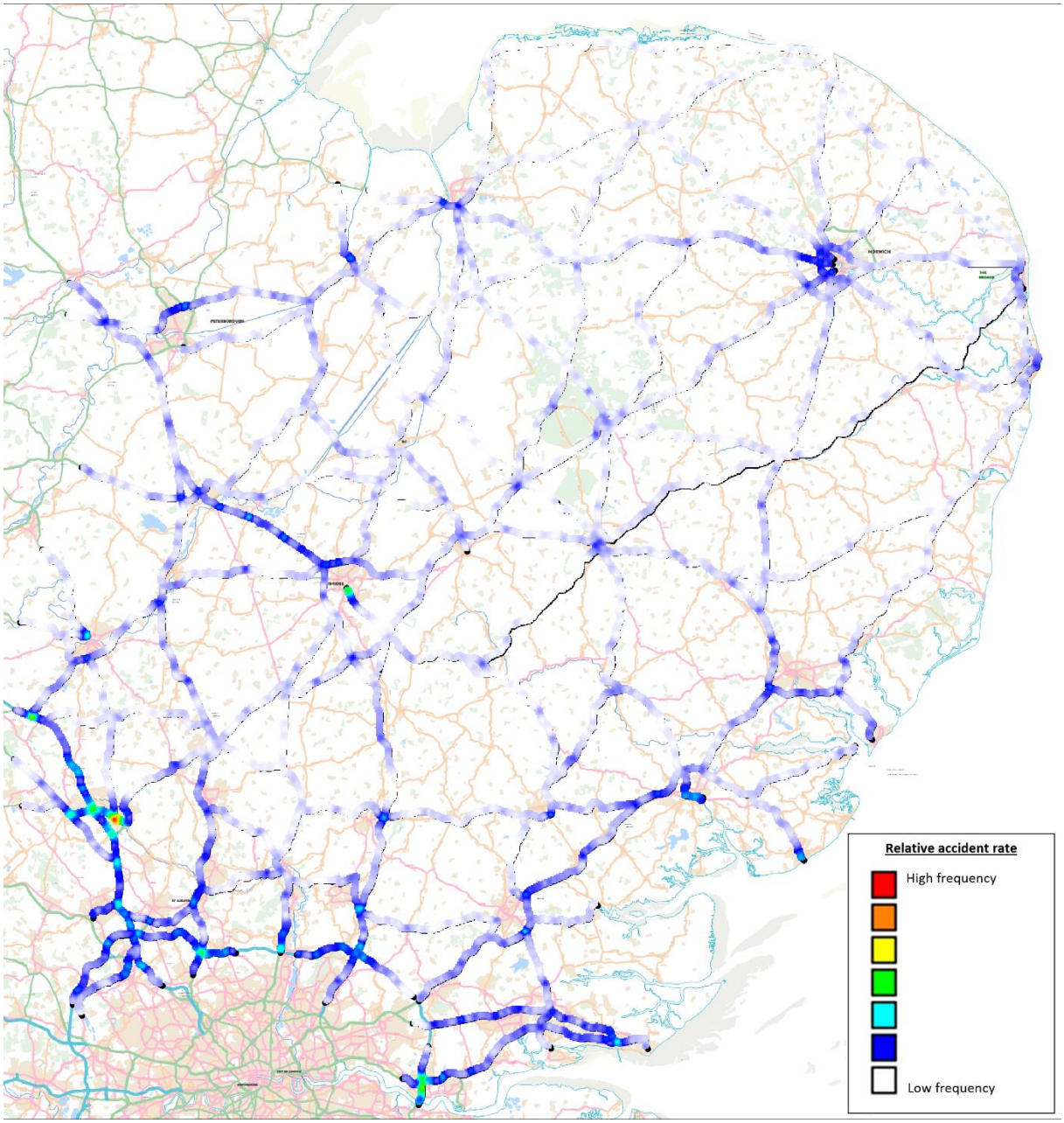


Figure 11: Route Analysis - main inter-urban routes in the Eastern Region

This is an alternative visualisation of the same data shown in figure. 9, with the colour this time indicating frequency of collisions along linear routes for selected main roads in the region. It highlights some of the same areas as the heatmap, including the M1, M25, Dartford River Crossing (A282), Luton and roads around Norwich.

In addition it highlights areas around junctions on major trunk roads as having high concentrations of collisions. These are areas where vehicles make manoeuvres to leave or join the road, and experience the knock-on effect of other traffic leaving or joining the road. This may lead to collisions both at the junction itself and up to a few hundred metres either side of it.

The route analysis map also highlights the following high collision volume routes:

- A14 north-west of Cambridge
- M11 south of Harlow
- A47 north of Peterborough

Key findings

Almost 50% of collisions were on urban roads and less than a quarter were on trunk roads, although 69% were on classified (M,A,B,C) roads.

Areas around major junctions on trunk roads had high concentrations of collisions.

Urban areas with the highest concentrations of commercial vehicle collisions comprised:

- Cambridge
- Norwich
- Luton
- Bedford
- Peterborough

The inter-urban roads with the largest numbers of collisions were:

- M1
- M25
- A282 Dartford River Crossing and its approach from M25 junction with the A13
- A14 north-west of Cambridge
- M11 south of Harlow
- A47 north of Peterborough M11

Area and route profiles

This section summarises some key characteristics of Commercial Vehicle collisions in the geographic areas of interest identified previously, specifically:

- Built up areas:
  - Cambridge
  - Norwich
  - Luton
  - Bedford
  - Peterborough
- High collision volume routes:
  - M1
  - M25
  - Dartford River Crossing
  - A14 north west of Cambridge
  - M11 south of Harlow
  - A47 north of Peterborough

Peak times

The chart below illustrates the overall peak time for all commercial vehicle collisions in the Eastern Region.

Hour	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
0000-0059	0.1%	0.1%	0.0%	0.1%	0.1%	0.3%	0.3%
0100-0159	0.1%	0.1%	0.0%	0.1%	0.1%	0.1%	0.3%
0200-0259	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%
0300-0359	0.0%	0.0%	0.1%	0.1%	0.1%	0.2%	0.2%
0400-0459	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.0%
0500-0559	0.2%	0.2%	0.2%	0.3%	0.3%	0.2%	0.1%
0600-0659	0.6%	0.6%	0.8%	0.6%	0.6%	0.2%	0.1%
0700-0759	1.1%	1.0%	1.4%	1.1%	1.0%	0.3%	0.1%
0800-0859	1.8%	1.6%	1.9%	1.6%	1.4%	0.5%	0.2%
0900-0959	1.1%	1.4%	1.2%	1.1%	1.0%	0.4%	0.3%
1000-1059	1.2%	1.0%	1.1%	0.9%	1.2%	0.7%	0.4%
1100-1159	1.0%	1.0%	1.0%	1.0%	1.1%	0.8%	0.4%
1200-1259	1.1%	1.1%	1.0%	1.0%	1.1%	0.7%	0.4%
1300-1359	1.2%	1.1%	0.9%	1.0%	1.2%	0.8%	0.5%
1400-1459	1.0%	1.2%	1.1%	1.0%	1.0%	0.6%	0.4%
1500-1559	1.2%	1.1%	1.3%	1.2%	1.4%	0.5%	0.5%
1600-1659	1.3%	1.4%	1.4%	1.4%	1.4%	0.6%	0.4%
1700-1759	1.2%	1.5%	1.3%	1.4%	1.3%	0.5%	0.4%
1800-1859	0.8%	0.9%	0.9%	0.8%	0.9%	0.4%	0.4%
1900-1959	0.4%	0.4%	0.5%	0.6%	0.6%	0.4%	0.3%
2000-2059	0.2%	0.3%	0.3%	0.3%	0.4%	0.3%	0.2%
2100-2159	0.2%	0.2%	0.3%	0.3%	0.3%	0.3%	0.1%
2200-2259	0.2%	0.1%	0.2%	0.2%	0.3%	0.3%	0.2%
2300-2359	0.2%	0.1%	0.1%	0.1%	0.2%	0.2%	0.1%

Figure 12: Peak time analysis - all collisions

This shows collisions peaks follow established traffic flow peak times, with the weekday morning peak slightly more concentrated but shorter in duration than the afternoon peak. There is a notable drop off in collisions at the weekend, as may be expected with commercial traffic, with a larger drop on Sundays compared to Saturdays. An average day would see 14.7% of the weekly collisions, the commercial vehicle data shows 9.7% occurred on Saturdays and 6.5% on Sundays. Wednesdays and Fridays were the busiest, each accounting for over 17% of collisions.

All but one of the areas of interest had a **correlation coefficient of >0.94** for the proportion of collisions at each hour of the week, when compared to the regional peak time analysis in figure 12. The A47 north of Peterborough had a coefficient of 0.88. For this road, collisions still followed expected peak flows, but 30% of the weekly total occurred on Tuesdays.

Correlation coefficients show the degree to which variation in one set of data matches the variation in another set of data. If two datasets have identical patterns then the correlation coefficient will be 1. A correlation coefficient of 0.9 means that 90% of the variation in one dataset can be predicted by variation in the other dataset.

Vehicle types

The chart below compares the ratios of commercial vehicle types involved in collisions in each of the geographic areas of interest.

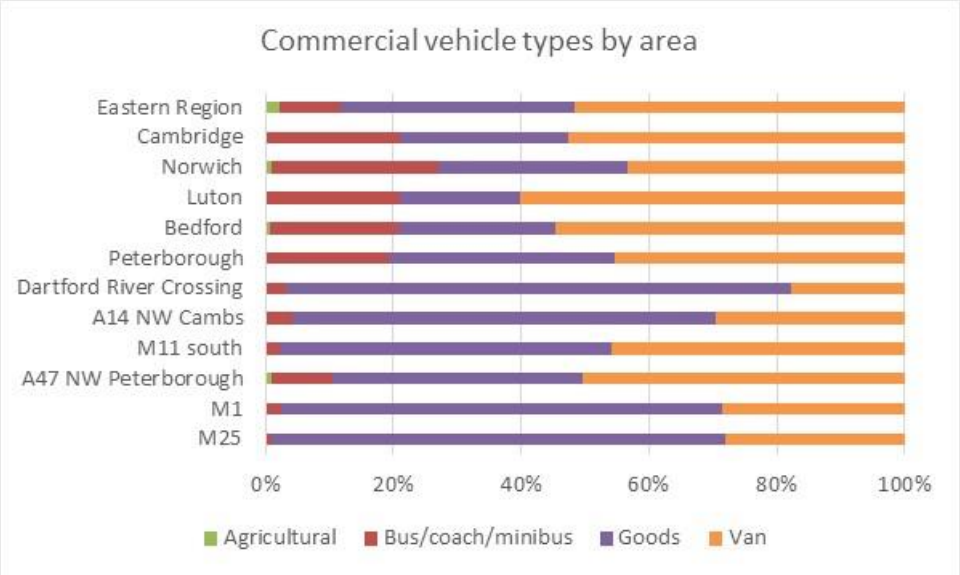


Figure 13: Commercial vehicle type proportions by area

The degree of over or under representation for each vehicle type compared to the region as a whole shows some clear patterns:

- **Agricultural vehicles:** Under represented in all the areas and routes of interest. This suggests agricultural vehicle collisions are geographically dispersed and tend to occur in less busy locations.
- **Bus+coach:** Well over represented in the built up areas by an average factor of 2.2, but under represented on the route-based locations except the A47.
- **Goods vehicles:** Over represented on all the routes by an average factor of 1.7, under represented in all the built up areas except Peterborough.
- **Vans:** Fairly evenly represented in most locations, but well under represented on the M1, M25, Dartford river crossing and A14, all of which are dominated by Goods vehicles.

Driver age and gender

Where recorded, 96% of all commercial vehicle drivers were male. Between 92% and 99% of commercial vehicle drivers were male in each of the identified geographic areas of interest.

The chart below shows the age profile for drivers of commercial vehicles in all collisions in the Eastern Region.

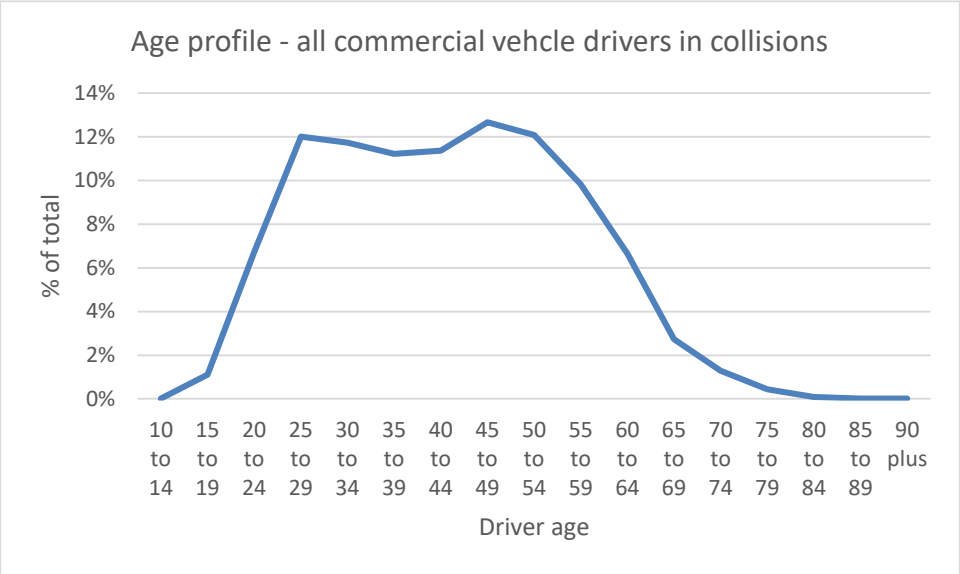


Figure 14: Age profile of all commercial vehicle drivers involved in collisions

The correlation coefficient for the commercial vehicle driver age profile in each area of interest ranged from 0.89 to 0.98, with only the A47 north of Peterborough having a coefficient lower than 0.92. This area had slightly higher proportions of drivers in the 45 to 59 age range and a correspondingly lower proportion aged 20-44.

This shows a clear and consistent trend of drivers being working aged males, with numbers beginning to drop off from the age of 55 onwards. Although the proportion of drivers involved in collisions is fairly consistent from aged 25-54 at ~12%, this may disguise higher risk for younger drivers who are under represented in the industry. The following graph uses commercial licence holder information as a proxy measure for the underlying age profile of commercial drivers.

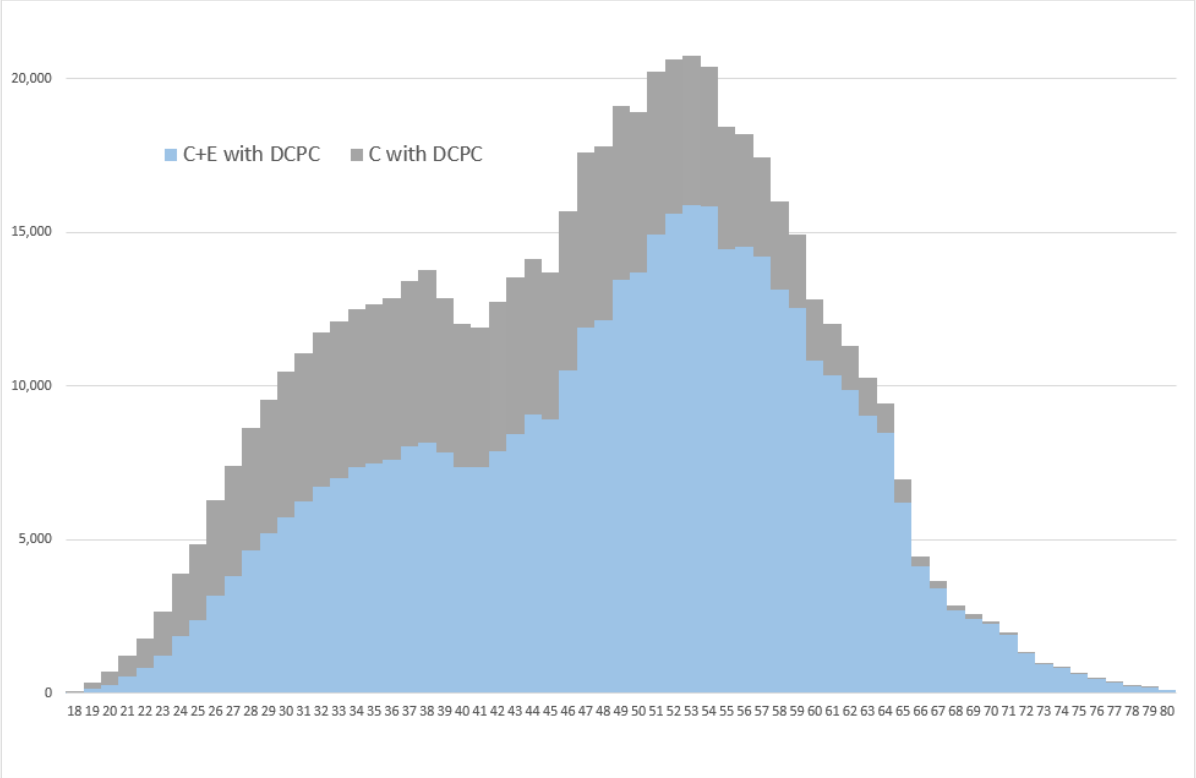


Figure 15: Heavy Goods licence and DCPC holders by age, Great Britain 2018[5]

This chart indicates the number of people at each age able to work professionally driving vehicles over 3.5t. These are drivers with either category C (3.5-7.5t vehicles) or C+E (7.5t+ vehicles) *and* the Driver Certificate of Professional Competence (DCPC) that is required to drive professionally.

This shows a peak for drivers in their 50s but much lower numbers in younger age ranges. Therefore if there is a smaller pool of professional drivers aged under 50 then their roughly equal frequency of collision involvement translates to a higher risk. This interpretation relies on the following assumptions:

- Younger drivers are not driving considerably more miles per person than those in their 50s
- The national trend applies well to the Eastern Region
- DCPC is a good proxy measure for the distribution of drivers actively working

[5] From "Why don't people want to be HGV drivers?" Kirsten Tisdale, Aricia Ltd. 2018. Source: http://www.aricia.ltd.uk/Temp/DriverCrisis_AriciaUpdate_101118.pdf

Junctions

The chart below shows the junction types involved in each of the geographic areas of interest, with comparison to the Eastern Region as a whole.

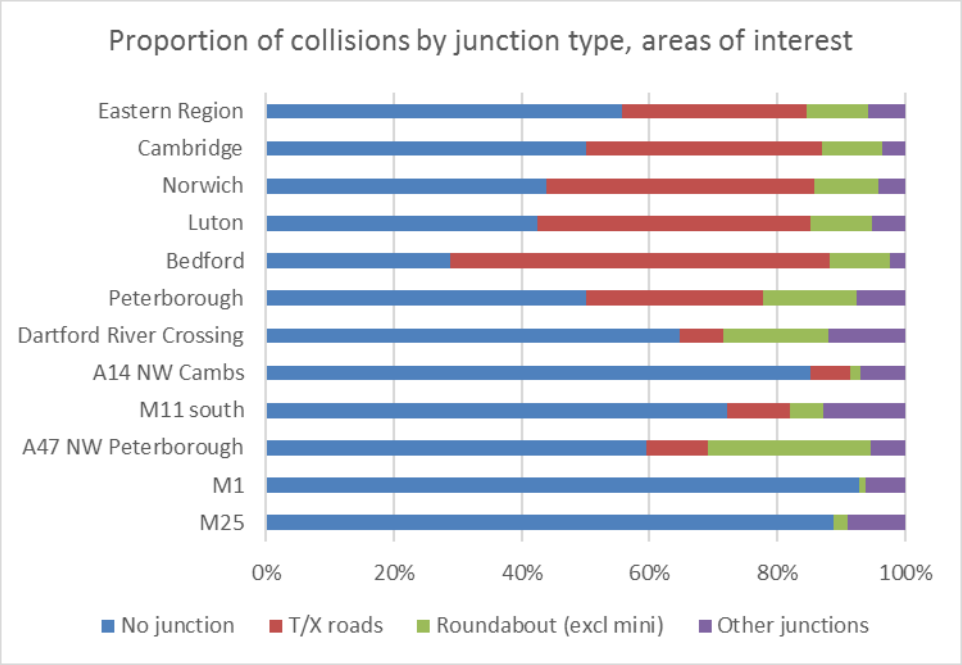


Figure 16: Junction type breakdown, collisions in areas of interest

This shows that 56% of collisions in the region were not at junctions, with those that were at junctions being mainly at T-junctions or cross roads.

As may be expected, the urban areas of interest had a greater proportion of collisions at T-junctions, particularly in Bedford which had nearly 60% of collision occurring at T junctions or crossroads. The route based locations had larger proportions of collisions that were not at junctions, especially the M25 and M1 with non-junction collisions accounting for 89% and 93% respectively. It should be noted that in STATS19 'at a junction' means within 20m of a junction. Previous work examining motorway collisions indicates collisions tend to happen within a few hundred metres of junctions as a result of traffic slowing and changing lanes[6].

Another area of note here is that the A47 north west of Peterborough has a larger than average proportion of collisions that occurred at roundabouts, likely reflecting the nature of the road infrastructure.

[6] Cubbin W. Road Traffic Collisions Analysis; The M11 in Essex (2017) SERP ref. RSA-17-353

Casualty mode

The chart below shows the casualty types involved in each of the geographic areas of interest, with comparison to the Eastern Region as a whole.

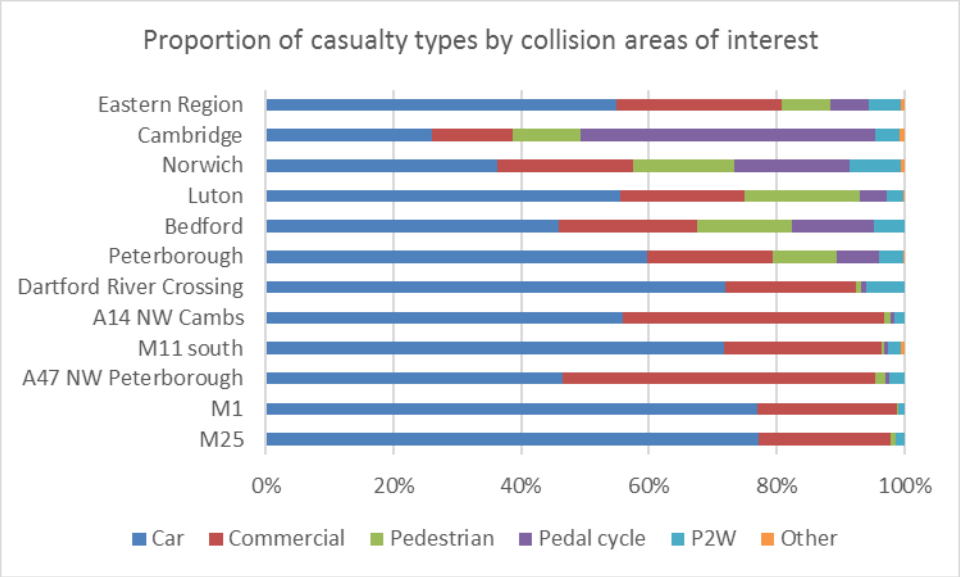


Figure 17: Collisions by casualty type, areas of interest

As may be expected, the majority of casualties were either in cars (55%), which account for the majority of traffic, or commercial vehicles (26%), which by definition were involved in every collision. The size of most commercial vehicles means that although every collision involved a commercial vehicles, there were more car occupants injured than commercial vehicle occupants. This imbalance in casualty numbers reflects the imbalance in kinetic energy of the different vehicles.

This data also shows a predictable pattern of urban areas having a higher proportion of pedestrian and cyclist casualties.

There are two notable locations where this trend was exaggerated:

1) Cambridge – where 46% of casualties were pedal cyclists
2) A47 NW of Peterborough – where 49% of casualties were in commercial vehicles compared to 26% for the region as a whole.

Key findings

All areas had little variation in their collision peak times. These followed morning and afternoon peak traffic flows on weekdays with lower total volumes spread more evenly though the daytime at weekends.

All areas saw a consistent driver age and gender profile with the vast majority being males aged 25-55, tailing off gradually for people approaching retirement age. Driver licencing data indicates the age profile of those driving is more skewed towards those in their 40s and 50s. This would suggest a higher risk per driver for drivers under 40 if they are indeed less numerous on the road but equally represented in collisions.

The built up area hotspots had the following characteristics:

- Larger proportion of pedestrian and cyclist casualties, particularly for cyclists in Cambridge
- Larger proportion of collisions at junctions, especially in Bedford
- Larger proportion of collisions involving buses and coaches

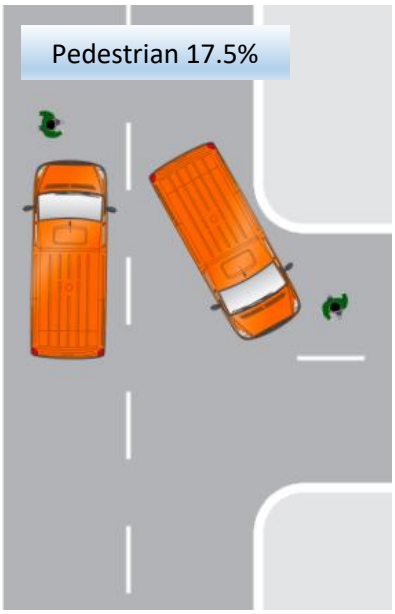
The high volume collision routes had the following characteristics:

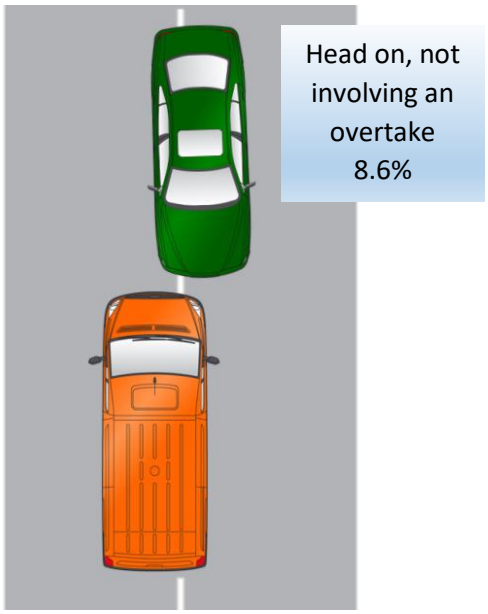
- Larger proportion of car occupant casualties and also of commercial vehicle casualties on the A47
- Relatively few collisions at junctions except for large numbers of roundabout collisions on the A47
- Larger proportion of collisions involving goods vehicles, and very few buses or coaches

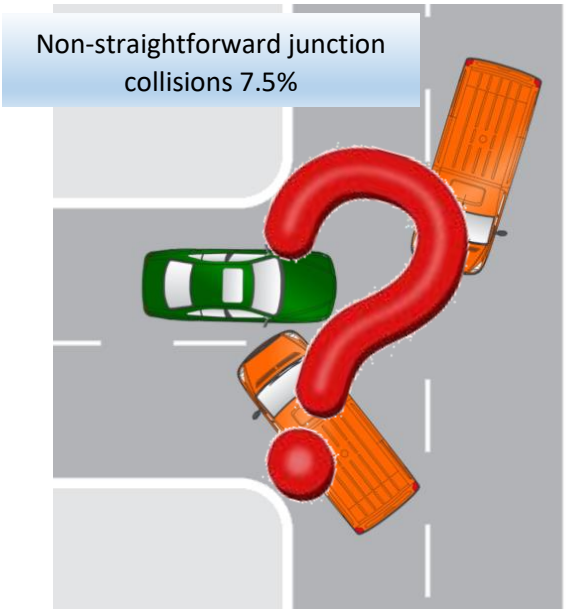
Collision types

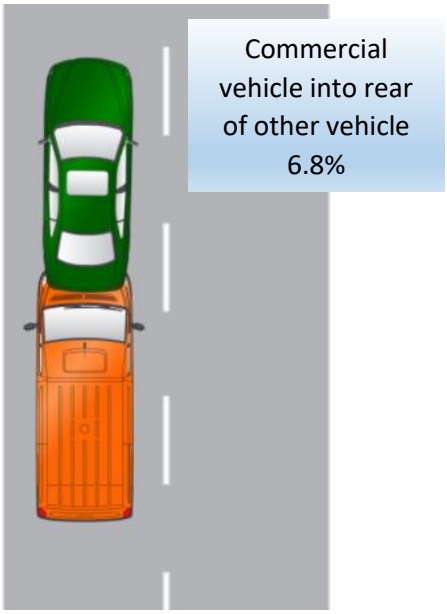
All collisions are unique and many are complex, with countless subtle differences in how they occurred and were borne out. The large number of fields in STATS19 data also means there are multiple ways to both record and interpret a set of collision parameters. A definitive classification of this bulk data is therefore not possible, nevertheless by examining road types, manoeuvres, junction location, junction type and points of impact, collisions can be categorised in to broad groups sharing similar scenarios and collision mechanics.

This method yielded the 25 collision types listed in Appendix 1. Between them, these 25 accounted for 88% of all collisions, with the remaining 12% being too complex, unique or having insufficient data quality to interpret in bulk. The illustrations below outline collision mechanics for the collision types that each accounted for 5% or more of collisions where somebody was killed or seriously injured.









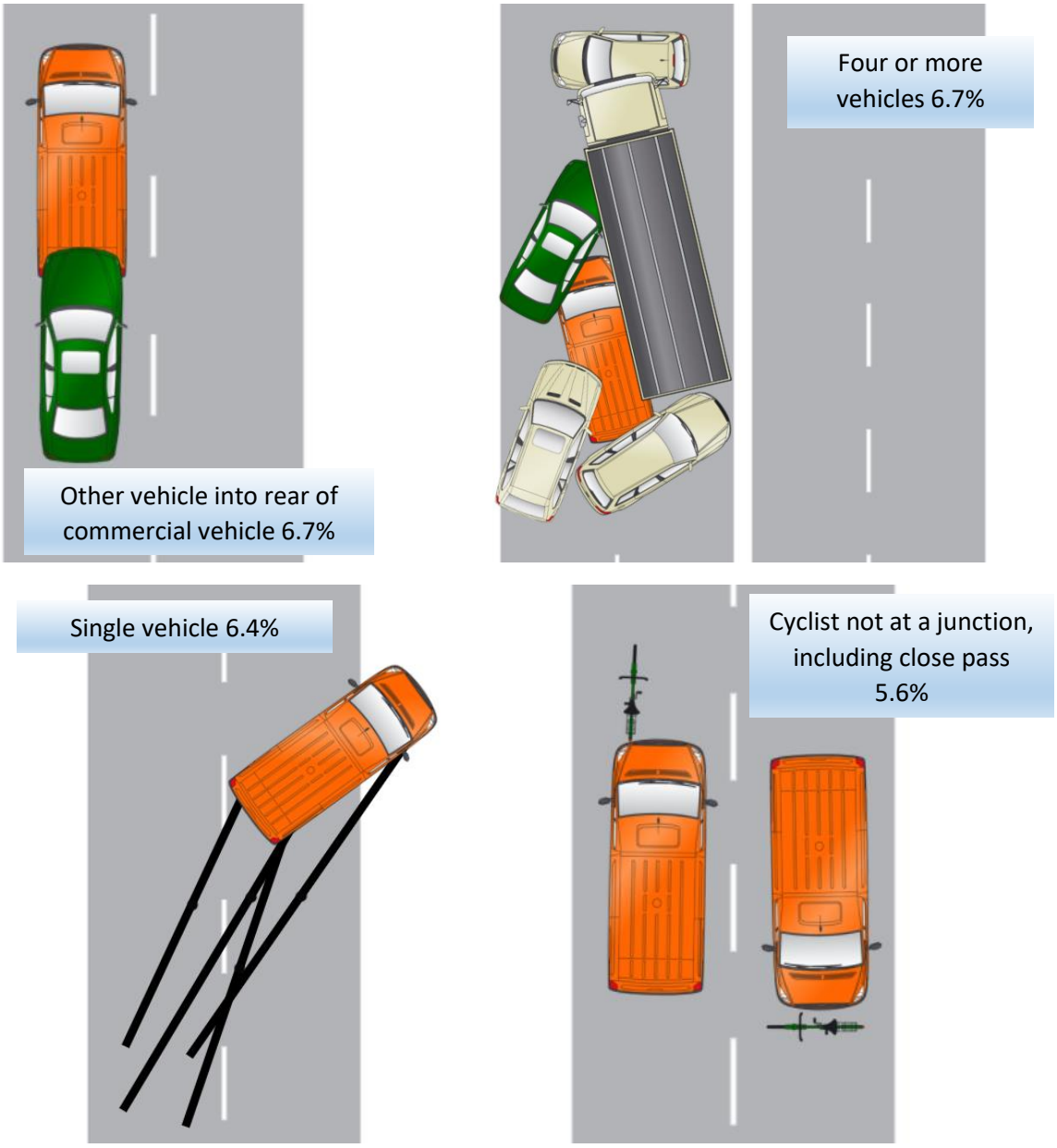


Figure 18: KSI collision types with more than 5% share of all commercial vehicle collisions

When looking at collisions of all severities, pedestrians were involved in 10.4% of commercial vehicle collisions. The prominence of pedestrians and cyclists in this list is partly a consequence of their physical vulnerability. The diagrams in figure 18 are for the most common KSI collisions and vulnerability to injury is a factor in pedestrians and cyclists being represented more prominently among KSI collisions than slights. Powered two wheeler riders are also more vulnerable to injury but their collisions were grouped with other motor vehicles for the purpose of this analysis because their similarity to other motor traffic in terms of speed and lane positioning, and lower level of involvement overall[7].

Collisions involving KSI injuries to pedal cyclists at junctions fell into two distinct groups; those at roundabouts and those at T-junctions. Between them, these accounted for 6.1% of Commercial Vehicle KSI collisions, compared to 5.6% that involved cyclists not at junctions.

[7] A separate project looking specifically at powered two wheelers in the Eastern Region was produced in 2017.

Vehicle type profiles

Agricultural vehicles

Collision types

The most common types of collision involving agricultural vehicles were:

Agricultural	% of all collisions	Agricultural	% of KSI collisions
misc/unclear	20.2%	misc/unclear	17.9%
Head on	13.4%	Head on	11.9%
Oth veh nose to CV tail	10.5%	Oth veh nose to CV tail	11.9%
Misc junction collisions	7.3%	>3 vehicles	11.9%
CV nose into other tail	6.5%	Pedestrian	7.5%

Figure 19: Top 5 collision types involving agricultural vehicles

The relative size of some agricultural vehicles, combined with their use on minor rural roads (*fig. 5*) may explain their relatively frequent involvement in head-on collisions. The following table summarises the main contributory factors assigned to drivers of agricultural vehicles in these scenarios. The factors per collision measure is the ratio of contributory factors assigned to the agricultural vehicles drivers and the number of collisions they were involved in. the larger the factor the more frequently it was deemed that the agricultural vehicle driver contributed to the collision.

Agricultural

Collision type	Top 5 CFs	Factors per collision
Head on	Failed to judge other persons path or speed Road layout Vegetation Careless/Reckless/In a hurry Failed to look properly	0.52
Oth veh nose to CV tail	Poor turn or manoeuvre Sudden braking Failed to judge other persons path or speed Other Stolen vehicle	0.40
Misc junction collisions	Road layout Driving too slow for conditions or slow veh Poor turn or manoeuvre Junction restart Inexperience with type of vehicle	1.08
CV nose into other tail	Failed to look properly Distraction in vehicle Following too close Distraction outside vehicle Dazzling sun	0.83
>3 vehicles	Failed to judge other persons path or speed Distraction in vehicle Failed to look properly Following too close Road layout	1.27
Pedestrian	Vehicle blind spot Failed to signal/Misleading signal Road layout Overloaded vehicle or trailer	0.67

Figure 20: Top 5 factors for most common collision types - Agricultural vehicle drivers

For most of the common collision types the agricultural drivers were usually not assigned any contributory factors. Junction and multiple vehicle collisions were the scenarios where agricultural vehicle drivers were most likely to have contributed to the collision.

Observation, distraction and manoeuvring errors featured for these drivers. Difficulties with road layout and other highway related factors were also a feature, likely exacerbated by the size of many agricultural vehicles, especially compared to the size of some of the rural roads where many agricultural vehicle collisions occur.

There were relatively few risk taking type behaviours, with many reflecting difficulties operating a large vehicle on narrow rural roads.

Driver profile

The following charts give an overview of the profiles for Agricultural vehicle drivers involved in collisions.

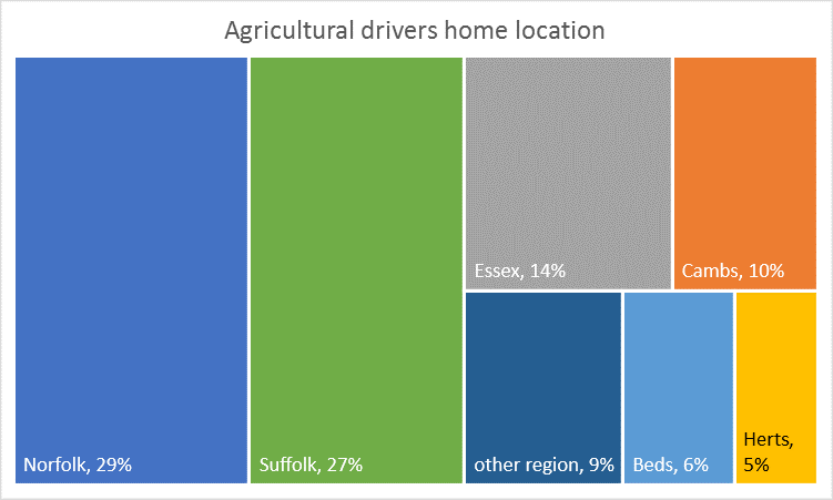


Figure 21: Agricultural drivers home location

Average distances to collision from home for drivers ranged from 8.5 miles for Bedfordshire to 30.7 miles in Essex, with a regional average of 18.6 miles.

This shows drivers tend to live fairly locally with fewer than 1 in 10 being resident outside of the region. The counties of Norfolk and Suffolk account for over half of the agricultural drivers between them, with very few drivers living in Bedfordshire or Hertfordshire.

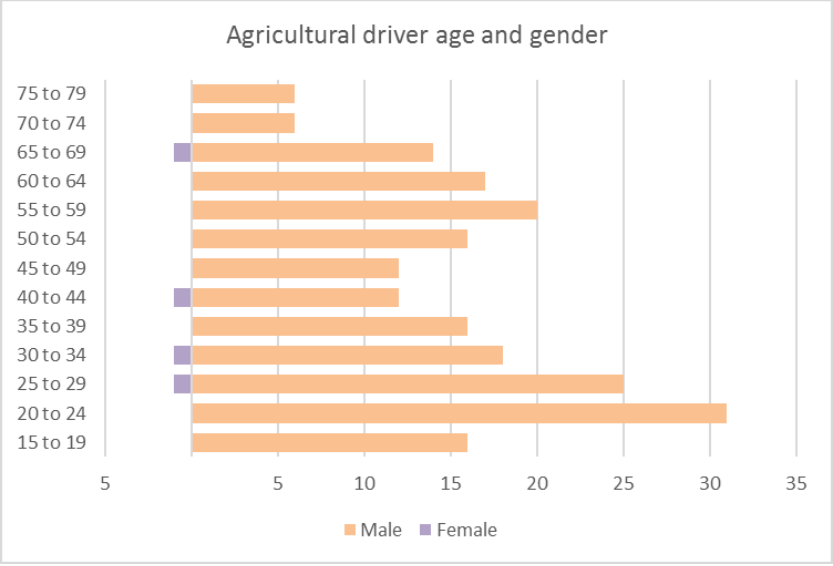


Figure 22: Agricultural driver age and gender

This shows drivers are overwhelmingly male and of working age, with those in their 20s being most frequently involved in collisions.

The charts below show a very clear socio-economic profile, with drivers living in areas of medium deprivation and over 50% living in Mosaic type A areas with most of the rest in type G areas (see appendix 2 for details).

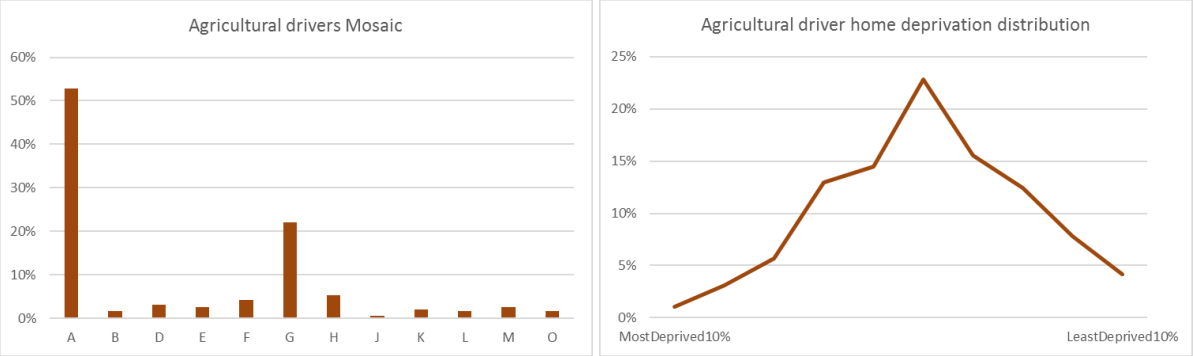


Figure 23: Agricultural drivers Mosaic and Deprivation

The Mosaic type A area is called "Country Living" and is characterised by wealthy people living in large detached homes and higher than average self employment. Type G is "Rural reality" with resident having modest incomes and often agricultural employment.

The large spike in the middle of the deprivation spectrum is somewhat at odds with the fact over 50% live in type A areas. However, both deprivation and Mosaic area classifications do not necessarily reflect every resident of an area, so some of these drivers may be wealthy landowners but many other may simply live in more modest housing within these areas because of the employment in the agricultural sector.

Key findings

Agricultural vehicle collisions were characterised by the following:

- Head on and nose to tail collisions were the most common
- Drivers had relatively few risk taking type behaviours and a low rate or errant behaviour overall.
- Errors made were most frequently related to observation, distraction and manoeuvring.
- Drivers tended live fairly close to their collision location.
- Most live in affluent rural areas but likely to be in modest housing within these areas because of their employment in the agricultural sector.

Buses & Coaches

Collision types

The most common types of collision involving Buses & Coaches were:

Bus/coach/mini-bus	% of all collisions	Bus/coach/mini-bus	% of KSI collisions
Pedestrian	24.6%	Pedestrian	34.2%
CV nose into other tail	8.2%	Cyclist - no junction	7.4%
Single vehicle	7.9%	Cyclist - junction	6.6%
Misc junction collisions	7.7%	Single vehicle	6.6%
misc/unclear	7.6%	CV involved - no impact	6.6%

Figure 24: Top 5 collision types involving buses and coaches

As may be expected, pedestrians featured heavily in Bus+coach collisions, and more so when the outcome was fatal or serious, as did cyclists.

Relatively low energy single vehicle collisions involving buses may result in injuries due to the lack of protection for occupants, and frequent use by elderly passengers with lower thresholds for physical injury.

The stop-start nature of buses combined with their large size on busy urban roads may contribute to the frequency of their involvement in collisions where the bus itself was not impacted.

Bus/coach/mini-bus

Collision type	Top 5 CFs	Factors per collision
Pedestrian	Failed to look properly Too close to cyclist, horse or pedestrian Poor turn or manoeuvre Failed to judge other persons path or speed Careless/Reckless/In a hurry	0.66
CV nose into other tail	Failed to judge other persons path or speed Failed to look properly Following too close Careless/Reckless/In a hurry Sudden braking	1.39
Single vehicle	Sudden braking Other Failed to look properly Careless/Reckless/In a hurry Poor turn or manoeuvre	1.30
Misc junction collisions	Failed to look properly Failed to judge other persons path or speed Poor turn or manoeuvre Following too close Loss of control	0.54
Cyclist - no junction	Failed to look properly Careless/Reckless/In a hurry Poor turn or manoeuvre Failed to judge other persons path or speed Too close to cyclist, horse or pedestrian	0.62
Cyclist - junction	Failed to look properly Too close to cyclist, horse or pedestrian Failed to judge other persons path or speed Vehicle blind spot Disobeyed automatic traffic signal	0.63

Figure 25: Top 5 factors for most common collision types - Bus/coach/mini-bus drivers

Bus drivers were most likely to contribute to nose-to-tail collisions, and the factors involved were all typical risk factors for this type of collision, involving poor observation, impatience and close following.

Observation and manoeuvring errors frequently featured in other common types of collision. There were relatively few risk taking type behaviours, with most reflecting difficulties operating a large vehicle on crowded urban roads.

Driver profile

The following charts give an overview of the profiles for Bus+coach drivers involved in collisions.

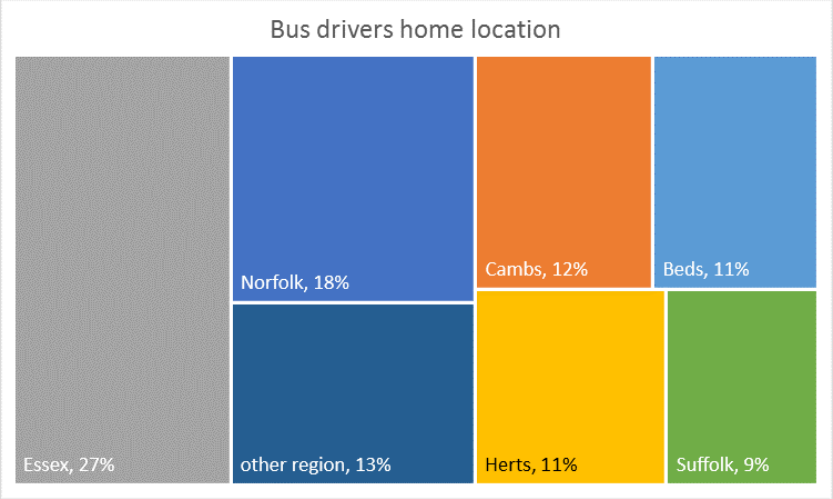


Figure 26: Bus drivers home location

Average distances to collision from home for drivers ranged from 10.3 miles in Essex to 19.6 miles in Cambridgeshire, with a regional average of 13.0 miles. This shows drivers did tend to live fairly locally to their collision. It was not possible to distinguish between bus and coach drivers, but it may be expected that coach drivers spend more time operating a long distance from home than bus drivers, but also spend more time on lower risk trunk roads compared to the more urban operating environment of bus drivers.

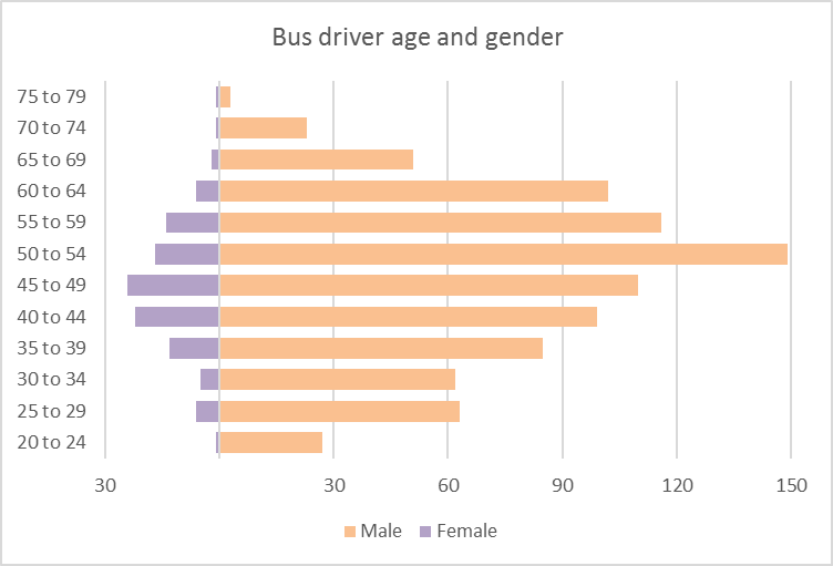


Figure 27: Bus+coach driver age and gender

There is slightly more female representation among bus drivers than the other types of commercial vehicles, but over 88% of drivers were male. As with all the other types of commercial vehicle, drivers were of working age with larger numbers in their 40s to mid 60s. This may reflect the age profile of drivers as a whole more than any higher risk for drivers aged 40-65.

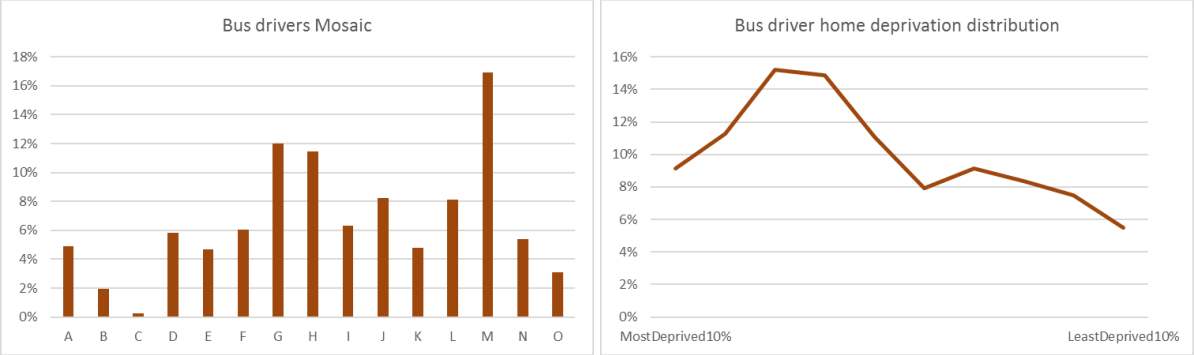


Figure 28: Bus drivers Mosaic and Deprivation

Bus and coach drivers tend to live in more deprived areas, though not at the very highest levels of deprivation. This is reflected in the Mosaic groups that account for most drivers being group G "Rural Reality", group H "Aspiring Homemakers" and group M "Family Basics". Appendix 2 has details of these Mosaic profiles. These areas include low cost homes in villages (G) and housing association, council or ex-council houses (M) as well as areas with people more comfortably off (H), albeit without large disposable incomes.

Key findings

Bus+coach collisions were characterised by the following:

- Pedestrian, cyclist and nose to tail collisions were most frequent
- Drivers had relatively few risk taking type behaviours and a low rate or errant behaviour overall.
- Errors made were most frequently related to observation and manoeuvring.
- Drivers tended to live fairly locally to their collision.
- Only 12% were female and almost all were of working age with the largest numbers in their 40s to mid 60s.
- Drivers tend to live in more deprived areas, though not at the very highest levels of deprivation. Some lived in areas with people who are more comfortably off albeit without large disposable incomes.

Goods Vehicles

Collision types

The most common types of collision involving Goods vehicles were:

Goods vehicles	% of all collisions		Goods vehicles	% of KSI collisions
Offside to nearside dualled	17.9%		misc/unclear	12.2%
CV nose into other tail	16.8%		Pedestrian	11.1%
misc/unclear	11.3%		CV nose into other tail	11.0%
Oth veh nose to CV tail	7.6%		Offside to nearside dualled	9.1%
>3 vehicles	7.2%		Oth veh nose to CV tail	8.7%

Figure 29: Top 5 collision types involving goods vehicles

The *Offside to nearside dualled road* collision is particularly characteristic of goods vehicles collisions. It features in the top five of all goods vehicle collisions *and* goods vehicle KSI collisions, but not in the top 5 for all commercial collisions. This type of collision is illustrated below.

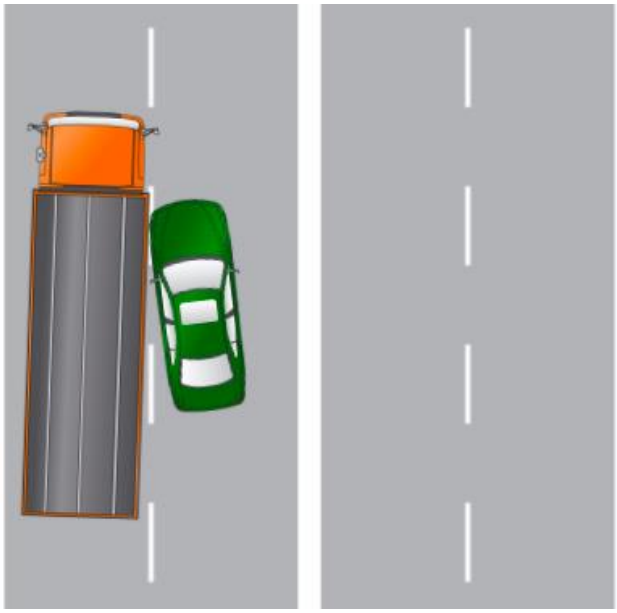


Figure 30: Offside to nearside dualled road collision

This type of collision could arise from lane changes without proper observation, lapses in concentration and impairments such as fatigue, distraction or intoxication.

Goods vehicles

Collision type	Top 5 CFs	Factors per collision
Offside to nearside on a dualled road	Failed to look properly Vehicle blind spot Poor turn or manoeuvre Failed to judge other persons path or speed Careless/Reckless/In a hurry	1.43
CV nose into other tail	Failed to look properly Failed to judge other persons path or speed Following too close Careless/Reckless/In a hurry Sudden braking	1.72
Other vehicle nose into CV tail	Failed to look properly Sudden braking Failed to judge other persons path or speed Following too close Poor turn or manoeuvre	0.46
>3 vehicles	Failed to look properly Failed to judge other persons path or speed Following too close Sudden braking Careless/Reckless/In a hurry	1.17
Pedestrian	Failed to look properly Poor turn or manoeuvre Failed to judge other persons path or speed Careless/Reckless/In a hurry Too close to cyclist, horse or pedestrian	0.90

Figure 31: Top 5 factors for most common collision types - Goods vehicle drivers

Goods vehicle drivers were relatively likely to have contributed to three of these collisions. Carelessness and risk taking featured in all types but not as frequently as observational errors. The key behaviours in the most common collisions were observations when changing lane and observation/close following in nose to tail collisions.

Driver profile

The following charts give an overview of the profiles for Goods vehicle drivers involved in collisions.

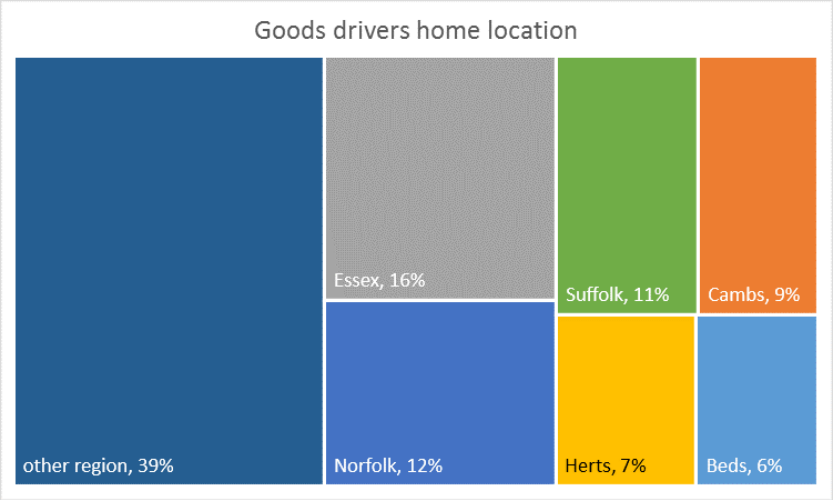


Figure 32: Goods vehicle drivers home location

Average distances to collision from home for drivers ranged from 31.6 miles for Norfolk to 44.7 miles in Cambridgeshire, with a regional average of 37.9 miles. There were more drivers from outside of the region than any single county within it, however the majority (61%) of drivers did live in the region.

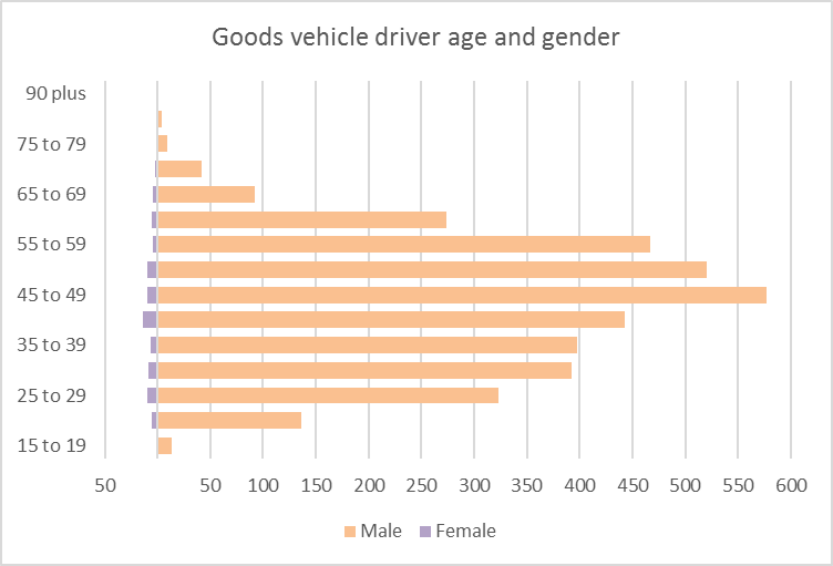


Figure 33: Goods vehicle driver age and gender

There were very few female drivers in this group with 98% being male. In terms of total number drivers were most frequently aged in the 40s or 50s, but this reflects the population of working drivers who are also predominantly within this age group (*fig. 15*).

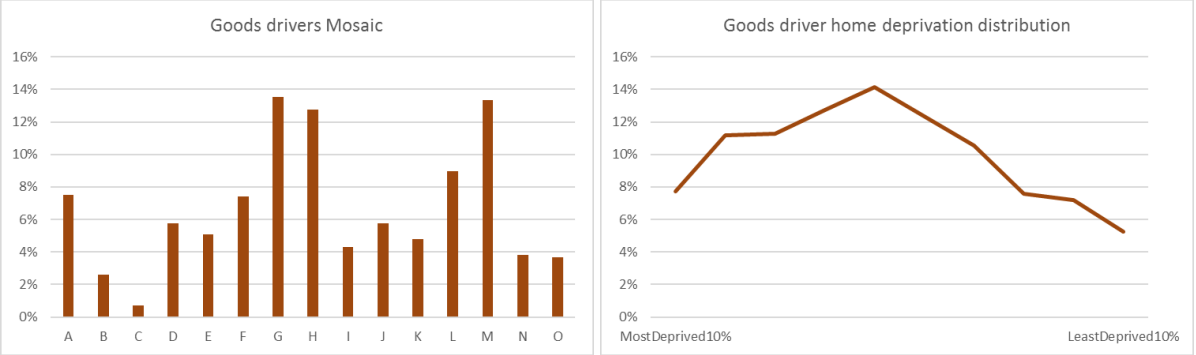


Figure 34: Goods vehicle drivers Mosaic and Deprivation

Goods vehicle drivers had similar Mosaic and deprivation profiles to bus drivers, although tended to be slightly more affluent. Types G, H and M Mosaic areas were the most common types of home area for goods vehicle drivers and they tended to live in areas that were neither especially deprived nor especially affluent.

These socio-economic profiles indicate drivers tend to live in areas ranging between moderate deprivation and comfortable income. They are a mix of homeowners and renters with few having a large disposable income, mostly living in villages and suburbs.

Key findings

Goods vehicle collisions were characterised by the following:

- Offside to nearside collisions on dualled roads were particularly characteristic of goods vehicles collisions. Nose to tail collisions were also fairly common.
- The key behaviours in the most common collisions were observations when changing lane and observation/close following in nose to tail collisions
- There were more drivers from outside of the region than any single county within it, however the majority (61%) of drivers did live in the region.
- Drivers were almost exclusively male and of working age, most frequently aged in their 40s or 50s.
- Drivers tend to live in areas ranging between moderate deprivation and comfortable income. They are a mix of homeowners and renters with few having a large disposable income, mostly living in villages and suburbs.

Vans

Collision types

The most common types of collision involving Vans were:

Van	% of all collisions	Van	% of KSI collisions
CV nose into other tail	16.7%	Pedestrian	14.2%
misc/unclear	10.7%	Head on	10.8%
Oth veh nose to CV tail	9.5%	misc/unclear	10.1%
Misc junction collisions	9.1%	Misc junction collisions	9.3%
Pedestrian	8.0%	>3 vehicles	8.4%

Figure 35: Top 5 collision types involving vans

Pedestrians and head on collisions were the most common types involving KSI injuries. Pedestrians feature here because of their vulnerability and head-on collisions because of the concentration of kinetic energy.

The most common collision type was the van driving into the rear of the other vehicle, with positions reversed for nearly 1 in 10 of all collisions.

Vans

Collision type	Top 5 CFs	Factors per collision
CV nose into other tail	Failed to look properly Failed to judge other persons path or speed Following too close Careless/Reckless/In a hurry Sudden braking	1.85
Other vehicle nose into CV tail	Sudden braking Failed to look properly Failed to judge other persons path or speed Poor turn or manoeuvre Careless/Reckless/In a hurry	0.44
Misc junction collisions	Failed to look properly Failed to judge other persons path or speed Careless/Reckless/In a hurry Poor turn or manoeuvre Disobeyed sign or markings	1.18
Pedestrian	Failed to look properly Careless/Reckless/In a hurry Failed to judge other persons path or speed Poor turn or manoeuvre Vehicle blind spot	1.20
Head on	Careless/Reckless/In a hurry Failed to look properly Failed to judge other persons path or speed Distraction in vehicle Road layout	1.16
>3 vehicles	Failed to judge other persons path or speed Failed to look properly Following too close Careless/Reckless/In a hurry Sudden braking	0.92

Figure 36: Top 5 factors for most common collision types - Van drivers

Van drivers had a relatively high number of factors per collision for most of the common types shown above. Carelessness and risk taking featured in all types but not as frequently as observational errors. The key behaviours in the most common collisions were close following, distraction/poor observation and poor manoeuvres or illegal manoeuvres.

Driver profile

The following charts give an overview of the profiles for Van drivers involved in collisions.

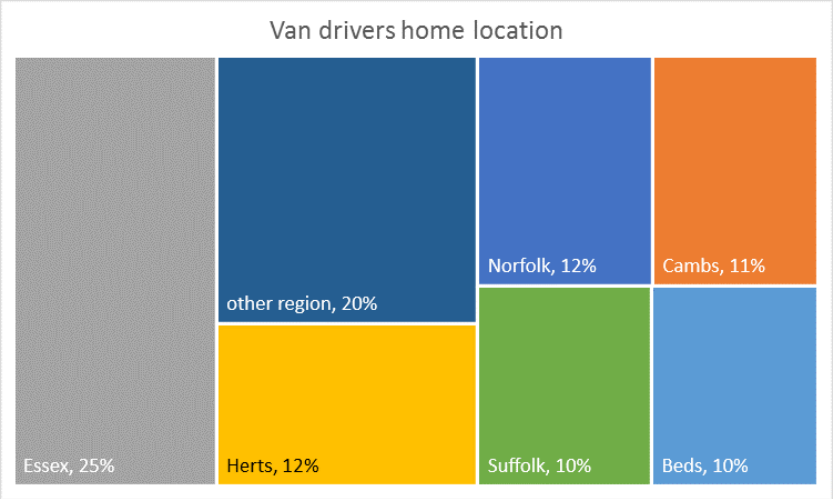


Figure 37: Van drivers home location

Average distances to collision from home for drivers ranged from 17.1 miles for Bedfordshire to 24.4 in Cambridgeshire, with a regional average of 19.0 miles. There was a considerable number of drivers from outside of the Eastern Region, but 80% were resident in one of the six counties with no single area accounting for fewer than 1 in 10 of the regional total.

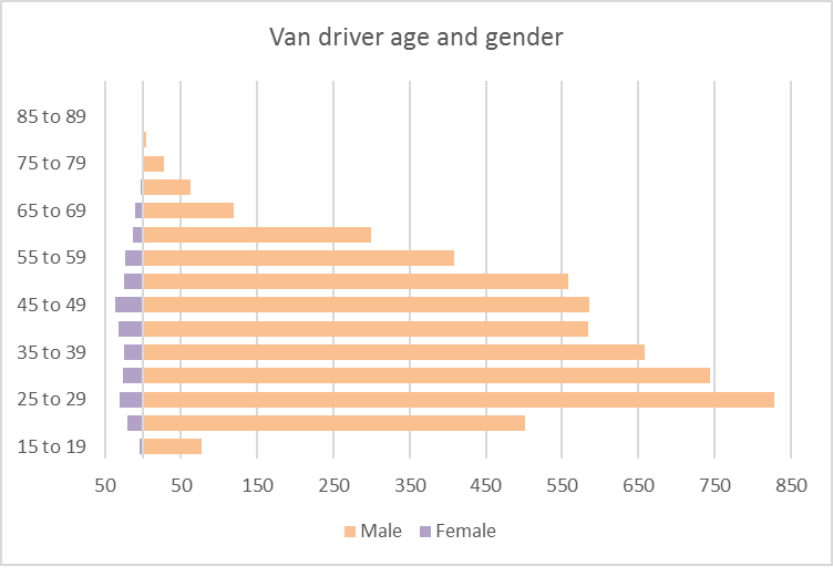


Figure 38: Van driver age and gender

A with other vehicle types, the age profile is almost exclusively male and of working age. The age profile is more towards the younger end of the working age spectrum. This may reflect both the greater accessibility of van driving and higher risks per mile among younger drivers.

The deprivation and Mosaic profiles for van drivers was very similar to that of bus and goods vehicle drivers in that most were from areas with neither high deprivation or high affluence and the largest numbers of driver home areas fell within Mosaic type G, H and M classifications.

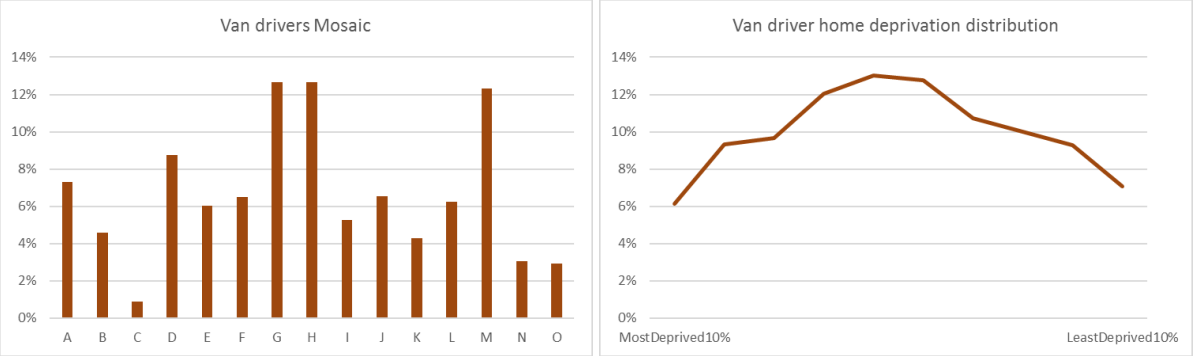


Figure 39: Van drivers Mosaic and Deprivation

These socio-economic profiles indicate drivers tend to live in areas ranging between moderate deprivation and comfortable income. They are a mix of homeowners and renters with few having a large disposable income, mostly living in villages and suburbs.

Key findings

Van collisions were characterised by the following:

- Pedestrians and head on collisions were the most common to result in KSI injuries, with the most common type of all being the van driving into the rear of another vehicle.
- Van drivers had a relatively high frequency of errant behaviour in the most common collisions, with close following, distraction/poor observation and poor or illegal manoeuvres featuring most frequently.
- Although a considerable number of driver were from outside the region, 80% were resident within the Eastern Region.
- Drivers were almost exclusively male and of working age, with more drivers towards the younger end of the working age spectrum
- Drivers tend to live in areas ranging between moderate deprivation and comfortable income. They are likely to be a mix of homeowners and renters with few having a large disposable income, and mostly living in villages and suburbs.

Offence data

Road Traffic Offences

The following table shows commercial vehicle specific offences recorded on PentiP in 2019 by Police Forces in the Eastern Region. Vehicle class is not consistently recorded in PentiP so cannot be used to distinguish commercial vehicle offences from other vehicles. Therefore the only way to identify offences that involved a commercial vehicle is to look at offence types that are specific to commercial vehicles. This approach inevitably misses out any commercial vehicle that was involved in an offence type that can apply to other vehicle types.

The individual offences are listed in Appendix 3, but the groups used in the table below can be described as follows:

- Loading: Overloaded vehicle or insecure load
- Speed: Speeding offences specific to large vehicles
- Tacho: Tachograph usage offences and drivers hours offences for goods vehicles and coaches
- Tyres: Tyre tread and condition offences specific to commercial vehicles

PentiP, 2019	*Commercial Vehicle Specific Offence*				
Police area	**Loading**	**Speed**	**Tacho**	**Tyres**	**All**
Bedfordshire	9		2	9	20
Cambridgeshire	12	5	9	1	27
Essex	26	75	181	5	287
Hertfordshire	20	2	27	15	64
Norfolk	10	1,302	36	7	1,355
Suffolk			53		53
Total	**77**	**1,384**	**308**	**37**	**1,806**

Figure 40: Commercial Vehicle specific offences, 2019

This shows large discrepancies both between Police Forces and offence types. For example the most common offence types were loading in Cambridgeshire, Tacho in Essex and Speed in Norfolk. Over 96% of speeding offences were in Norfolk, which accounted for 72% of all offences.

This data partly reflects policing activity, but mostly reflects differences in recording practice. For example, in Essex most goods vehicle speeding offences are recorded in PentiP under general speeding offence codes that can apply to any vehicle[8].

Therefore there is little that can be concluded from this data other than:

- There are over 1,300 commercial vehicle speeding offences per year in Norfolk alone.
- There are over 300 drivers hours offences per year in the Eastern Region.
- There are inconsistencies in how the data is recorded, limiting the scope of any analysis.

[8] The EROS safety camera back office system in Essex records vehicle class. This shows 226 speeding offences for HGVs and 7,832 speeding offences for LGVs in 2019. Equivalent data is not available for comparison at a regional level.

Non Road Crime

The map below shows the locations where human trafficking and modern slavery offences recorded on Athena with a vehicle involvement flag were detected, for the years 2017-2019.

Figure 41: Modern Slavery & Human Trafficking offences involving a vehicle, Athena 2017-2019

This data shows there were 11 offences over three years across the region. The only thing approaching a geographic trend is that all offences were detected in urban areas. There are likely to be some recording system and data quality issues with this data, particularly in the accuracy of the vehicle involvement flag. Therefore it is not possible to infer much about the prevalence of this type of activity from this data other than that it occurs across the whole region and tends to be detected in urban areas.

Key findings

Data quality and consistency issues prevent any worthwhile insight from being gained from offence data.

Appendices

Appendix 1 – All collisions types by severity

Percentages show the proportion of collisions in each column in each group.

Collision type	Fatal	Serious	Slight	All	KSI
Pedestrian	24.2%	16.6%	8.7%	10.4%	17.5%
misc/unclear	9.7%	11.2%	12.1%	11.9%	11.0%
Head on not involving an overtake	13.8%	7.8%	4.7%	5.5%	8.6%
Misc junction collisions	6.6%	7.6%	8.3%	8.1%	7.5%
Commercial vehicle into rear of other vehicle	5.9%	6.9%	15.5%	13.8%	6.8%
Other vehicle into rear of commercial vehicle	4.5%	7.0%	7.9%	7.7%	6.7%
4 or more vehicles	9.7%	6.3%	5.9%	6.1%	6.7%
Single vehicle	5.9%	6.4%	4.5%	4.9%	6.4%
Cyclist not at a junction inc. close pass	5.9%	5.5%	3.0%	3.5%	5.6%
Offside to nearside inc. lane changes on multi lane roads	4.5%	4.9%	8.7%	8.0%	4.8%
Cyclist at a junction	1.4%	5.2%	3.7%	3.9%	4.8%
Commercial vehicle right turn	0.7%	3.6%	3.0%	3.0%	3.3%
Commercial vehicle involved, no impact	0.7%	2.4%	2.9%	2.7%	2.2%
Other vehicle turning right	1.0%	2.3%	3.4%	3.1%	2.1%
Cyclist at a roundabout	0.0%	1.6%	1.5%	1.5%	1.4%
Other vehicle overtaking head on into commercial vehicle	2.4%	0.9%	0.4%	0.6%	1.1%
Other vehicle entering main road	1.4%	0.8%	0.9%	0.9%	0.8%
Commercial vehcile entering main road	0.7%	0.8%	0.7%	0.7%	0.7%
Both vehcles on roundabout	0.0%	0.6%	1.5%	1.3%	0.5%
Slip road collisions	0.3%	0.4%	0.5%	0.5%	0.4%
Other vehicle entering roundabout	0.3%	0.3%	0.9%	0.8%	0.3%
Commercial vehicle entering roundabout	0.0%	0.3%	1.0%	0.8%	0.3%
Multi vehicle nose to tail	0.3%	0.3%	0.2%	0.2%	0.3%
Other vehcile overtaking commercial vehicle into third vehicle	0.0%	0.2%	0.2%	0.2%	0.2%
Commercial vehicle overtaking head on into other vehicle	0.0%	0.1%	0.1%	0.1%	0.1%

Appendix 2 – Selected Mosaic profiles

G Rural Reality

Householders living in inexpensive homes in village communities

Orkney Islands
5.87% | 5.55%

Who We Are

Age	Household Income
46-50	£20k-£29k
11.4% 123	24.3% 118

Household composition	Number of children
Single	No children
40.5% 107	75.7% 105

Tenure	Property type
Owned	Semi-detached
69.0% 107	32.6% 123

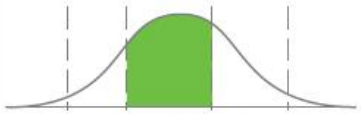
Channel Preference

102 91 111
91 107 90

Key Features

- Rural locations
- Village and outlying houses
- Agricultural employment
- Most are homeowners
- Affordable value homes
- Slow Internet speeds

Technology Adoption



Early Majority






Age

18-25	8.41%
26-35	13.84%
36-45	18.89%
46-55	21.94%
56-65	18.01%
66+	18.91%
Adult mean age	49.62
H of HH mean age	52.53

Household Composition

Families	23.24%
Extended family	8.48%
Extended household	5.70%
Pseudo family	10.95%
Single male	17.63%
Single female	22.92%
Male homesharers	1.31%
Female homesharers	2.48%
Mixed homesharers	3.68%
Abbr male families	1.37%
Abbr female families	2.20%

Children

No children	75.65%
1 child	10.37%
2 children	7.94%
3 children	3.72%
4+ children	2.32%
Age <5	11.43%
Age 5-11	13.39%
Age 12-17	11.62%
Age >18	12.29%

Household Income

<£15k	20.13%
£15k-£19k	8.75%
£20k-£29k	24.27%
£30k-£39k	18.47%
£40k-£49k	12.74%
£50k-£59k	7.03%
£60k-£69k	3.75%
£70k-£99k	3.81%
£100k-£149k	0.88%
£150k+	0.17%

Property Type

Detached	17.39%
Semi-detached	32.57%
Bungalow	19.77%
Terraced	24.74%
Purpose built flats	4.43%
Converted flats	1.09%
Farm	0.19%
Named building	7.62%

Home Ownership

Owned	68.95%
Rented	11.84%
Council / HA	19.21%

Online Access

Every day	65.68%
Most days	22.16%
Weekly	7.80%
Monthly	1.44%
Not at all	2.91%

H Aspiring Homemakers

Younger households settling down in housing priced within their means

Milton Keynes

8.79% | 8.17%

Who We Are

Age	Household Income
31-35	£40k-£49k
20.0% 223	20.5% 165
Household composition	**Number of children**
Pseudo family	2 children
19.6% 219	18.3% 198
Tenure	**Property type**
Owned	Semi-detached
77.2% 120	41.3% 156

Channel Preference

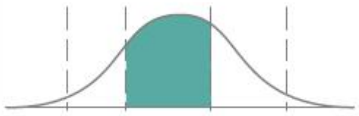
95 110 109

93 88 122

Key Features

- Younger households
- Full-time employment
- Private suburbs
- Affordable housing costs
- Starter salaries
- Buy and sell on eBay

Technology Adoption



Early Majority

Age

18-25		19.38%
26-35	210	37.17%
36-45		30.31%
46-55		11.65%
56-65		1.22%
66+		0.28%
Adult mean age		34.56
H of HH mean age		35.08

Household Composition

Families		32.43%
Extended family		2.43%
Extended household		4.41%
Pseudo family	219	19.59%
Single male		13.51%
Single female		19.07%
Male homesharers		1.27%
Female homesharers		1.93%
Mixed homesharers		3.69%
Abbr male families		0.69%
Abbr female families		0.90%

Children

No children	47.76%
1 child	23.06%
2 children	18.26%
3 children	8.29%
4+ children	2.63%
Age <5	21.31%
Age 5-11	16.83%
Age 12-17	12.74%
Age >18	6.37%

Household Income

<£15k	8.24%
£15k-£19k	3.87%
£20k-£29k	18.67%
£30k-£39k	21.99%
£40k-£49k	20.50%
£50k-£59k	12.69%
£60k-£69k	7.24%
£70k-£99k	5.90%
£100k-£149k	0.76%
£150k+	0.15%

Property Type

Detached	8.96%
Semi-detached	41.28%
Bungalow	5.30%
Terraced	35.27%
Purpose built flats	7.94%
Converted flats	1.25%
Farm	0.03%
Named building	0.61%

Home Ownership

Owned	77.23%
Rented	17.37%
Council / HA	5.40%

Online Access

Every day	73.22%
Most days	19.88%
Weekly	4.08%
Monthly	0.71%
Not at all	2.11%

M Family Basics

Families with limited resources who have to budget to make ends meet

Sandwell: 7.22% | 8.74%

Who We Are

Age	Household Income
31-35	<£15k
14.8% 165	29.3% 143
Household composition	**Number of children**
Family + other adults	3 children
33.9% 171	14.2% 332
Tenure	**Property type**
Council / HA	Terraced
55.5% 302	51.8% 191

Channel Preference

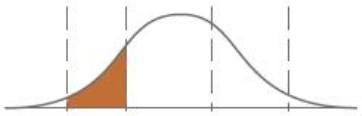
110 102 95

86 103 118

Key Features

- Families with children
- Aged 25 to 40
- Limited resources
- Some own low cost homes
- Some rent from social landlords
- Squeezed budgets

Technology Adoption



Early Adopters





Age

18-25	17.53%
26-35	28.34%
36-45	30.62%
46-55	19.69%
56-65	3.06%
66+	0.76%
Adult mean age	36.61
H of HH mean age	39.87

Household Composition

Families	23.12%
Extended family	15.75%
Extended household	218 13.82%
Pseudo family	15.56%
Single male	3.31%
Single female	14.73%
Male homesharers	0.75%
Female homesharers	3.21%
Mixed homesharers	5.35%
Abbr male families	0.89%
Abbr female families	3.44%

Children

No children	11.74%
1 child	289 35.86%
2 children	300 27.63%
3 children	332 14.21%
4+ children	487 10.57%
Age <5	235 25.50%
Age 5-11	243 30.28%
Age 12-17	22.44%
Age >18	10.23%

Household Income

<£15k	29.27%
£15k-£19k	8.84%
£20k-£29k	26.58%
£30k-£39k	17.32%
£40k-£49k	11.34%
£50k-£59k	4.71%
£60k-£69k	1.23%
£70k-£99k	0.62%
£100k-£149k	0.08%
£150k+	0.01%

Property Type

Detached	1.90%
Semi-detached	35.43%
Bungalow	2.91%
Terraced	51.85%
Purpose built flats	7.37%
Converted flats	0.54%
Farm	0.01%
Named building	0.11%

Home Ownership

Owned	36.61%
Rented	7.86%
Council / HA	302 55.53%

Online Access

Every day	71.08%
Most days	20.42%
Weekly	4.07%
Monthly	1.28%
Not at all	3.14%

Appendix 3 – Commercial vehicle specific collision types

Offence description
Contravene regulation made under section 98(4) / requirement of community rules re books / records / documents
Drive a vehicle for more than 10 hours in a working day - EC
Drive a vehicle for more than 4.5 hours without a break - AETR
Drive a vehicle for more than 56 hour in a working week - EC
Drive a vehicle for more than 9 hours in a daily driving period - EC
Drive a vehicle for more than the 90 hours fortnightly limit - EC
Drive a vehicle take less than 11 consecutive hours daily rest interval - EC
Drive a vehicle take less than 9 consecutive hours daily reduced rest interval - EC
Drive beyond the required period for rest / refreshment - domestic
Drive in excess of 10 hours in a working day
Drive vehicle more than 4.5 hours without minimum break of 45 minutes - EC
Drive vehicle take less than 24 hours weekly rest interval - domestic
Driver engaged in multi-manning of a vehicle fail to take at least 9 hours rest in a 30 hour period - EC
Driver of a motor vehicle fail to take 2nd daily rest period of at least 9 consecutive hours - EC
Driver of m/veh fail to take at least 24 consecutive hours reduced weekly rest period after 6 daily driving periods - EC
Driver of vehicle - multiple drivers - fail to take at least 8 hours rest in 30 hour period - AETR
Driver of vehicle exceed daily 9 hour driving limit - AETR
Driver of vehicle fail to submit weekly record sheet for examination - Domestic Rules
Driver of vehicle fail to take at least 11 hours rest in a 24 hour period - AETR
Driver of vehicle fail to take at least 45 consecutive hours weekly rest period after 6 daily driving periods - EC
Driver of vehicle fail to take at least 9 hours rest in a 24 hour period - reduced rest period - AETR
Driver of vehicle take less than 12 hours total daily rest period - EC
Exceed speed limit for goods vehicle - manned equipment
Exceeding speed limit for goods vehicle - ACD
Fail to enter detail on the centre field of a recording sheet of tachograph recording equipment installed in a vehicle
Fail to provide sufficient material to ensure the printing of tachograph records could be carried out on inspection
Fail to take 3 hours compensatory rest before end of 3rd week - where reduced weekly rest periods taken - EC
Fail to use a tachograph record sheet / record sheets / driver card
Operator fail to fit a tachograph properly
Speeding - exceed 5 / 18 / 20 / 30 / 40 / 50 / 60 mph limit for a goods vehicle - manned equipment
Speeding - exceed 5 / 18 / 20 / 30 / 40 / 50 / 60 mph limit for a goods vehicle - unmanned automatic equipment
Unauthorised withdrawal of a tachograph record sheet / driver card
Use a tachograph driver card when not the identified holder
Use a vehicle and fail to ensure the proper use of tachograph recording equipment
Use a vehicle having fail to ensure that a tachograph was installed and used
Use a vehicle having failed to ensure the tachograph / drivers card was functioning correctly
Use a vehicle without calibrated recording equipment
Use goods vehicle max gross weight of 3500kgs - tyre with less than 1.6mm depth of tread
Use on a road a motor vehicle / trailer - danger of injury due to weight / position / distribution / security of load
Use tachograph recording equipment with the mode switch incorrectly set
Use vehicle with no tachograph installed